

SEQUENCE LISTING

<110> Reed, Steven G.
 Lodes, Michael J.
 Houghton, Raymond L.
 Sleath, Paul R.
 McNeill, Patricia D.
 Homer, Mary
 Secrist, Heather

<120> COMPOUNDS AND METHODS FOR THE DIAGNOSIS
 AND TREATMENT OF *B. MICROTI* INFECTION

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<210> 12

<211> 572

<212> DNA

<213> Babesia microti

<400> 12

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aaacaattat	cagaaattgt	ataactgctt	attagcttat	tagcttatta	gttaggatgt	120
atgcacattg	atgacaacta	gatgcagcac	cacaatcact	accacgtacc	aatcatatac	180
caataatgta	ctaataatgt	accaataact	atggtttata	aagatgggtg	catttaaatac	240
aatattagtt	ccttatatta	cactcttttt	aatgagcggg	gctgtctttg	caagtatac	300
cgatcccgaa	gctggtgggc	ctagtgaagc	tggtgggcct	agtgaagctg	gtgggcctag	360
tggaaactgt	gggcccagtg	aagctgggtg	gcctagtga	gctggtgggc	ctagtgggac	420
tggttggcct	agtgaagctg	gtgggcctag	tgaagctggg	gggcctagt	gaactgggtg	480
gcctagtga	gctggttggg	ctagtgaacg	atttgatat	cagcttcttc	cgtattctag	540
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<210> 13

<211> 2338

<212> DNA

<213> Babesia microti

<400> 13

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tgacaactag	atgcagcacc	acaatcacta	ccacgtacca	atcatatacc	aataatgtac	180
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aaaaaaccaa	ggagaagaat	aaattgaaaa	agaatttggg	aaaatgtttt	cctgaacaat	660
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tgtttatata	ttgtgactta	ttattacaac	atttaattcta	taaattctat	tatgacaata	900
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cccaacaatg	tgattatgaa	cagaatccac	acttaccact	ggaccaaaca	tgtactttta	2280

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<210> 14

<211> 729

<212> DNA

<213> Babesia microti

<400> 14

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aaccttgaaa	tagaagcact	tatgccata	ttggaaatta	cttagtgaag	tgatccaaag	180
tactgatttg	gtcagaagac	atcaccagg	cactagctgg	cctagtgaac	tgagtatttg	240
tgaaagctga	ttttaatggt	gagaacatga	aggaagcagt	attgaggtaa	tggaatcttg	300
tagattatag	tagaagccaa	ctgagaccaa	gaaatgtacg	gtaggaatga	aataaggtct	360
tgggtgggca	ttgcatggag	ctgtgaaagt	gaagcgttgt	tgggttatag	attcgcaagt	420
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ctaaatgggg	gagttacat	ttcatgtgct	gggatccag	agatgtcaaa	ggagaaaata	540
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<210> 15

<211> 1448

<212> DNA

<213> Babesia microti

<400> 15

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aaacactttt	acaagtgtct	atcattgcta	gttacgggtc	atctggcgat	tacagtagtt	180
ttgtgttcac	tccagttgta	acagcagaca	ccaacgtttt	ttacaaatta	gagacggatt	240
tcaaacttga	tgttgatggt	attactaaga	catcactaga	attgccca	agtgttcctg	300
gctttcacta	caccgaaaact	atttaccaag	gcacagaatt	gtcaaaaatt	agcaagcctc	360
agtgcaaaact	taacgatcct	cctattacaa	caggatcggg	gttgcaaata	atacatgatg	420
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ttttttttga	attgctccct	ccatcggtatg	gcattcccac	cttgcgatca	aaattatttc	540
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tcgagaacct	ctctttccct	agtgcaatta	gcaattacac	cggactgaca	ggccgactta	660
acaaattact	tacagtttta	gacgggtattg	ttgatagcgc	cattagtgtc	aagactacag	720
aaactgtccc	tgacgacgca	gaaacttcta	tttcttcatt	gaaatcattg	ataaaggcaa	780
tacgagataa	tattactacc	actcgaaacg	aagttaccaa	agatgatggt	tatgcattga	840
agaaggccct	cacttgtcta	acgacacacc	taatatatca	ttcaaaaagta	gatggtatat	900
cattcgacat	gctgggaaca	caaaaaaata	aatctagccc	actaggcaag	atcggaacgt	960
ctatggacga	tattatagcc	atgttttctga	atcccaatat	gtatcttgtg	aaggtggcgt	1020
acttgcaagc	cattgaacac	atttttctca	tatcaaccaa	atacaatgat	atatttgatt	1080
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tcggaaacaa	ggtgaaggaa	tctttgtcat	ttattgaggg	tttgatttct	gacataaaaat	1200
ctcactcatt	gaaagctggg	gttacaggag	gtatatcaag	ttcatcatta	tttgatgaaa	1260
tcttcgacga	gttaaatttg	gatcaagcaa	caattagaac	ccttggttgca	ccattagatt	1320
ggccacttat	ctcagacaaa	agcctccacc	cttcactgaa	gatggttgtg	gtcctgccag	1380
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acggtgaa						1448

<210> 16
 <211> 1350
 <212> DNA
 <213> Babesia microti

<400> 16

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aaaggccaga	gtcaccccca	atctttccca	aaagattgaa	gtcactctct	ccatgccggc	180
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gagtgtggca	agcaaggggg	caaggctatc	agcacctagt	gacaatccca	gcacttagaa	420
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caataactat	ggttttataaa	gatgggtgtca	tttaaatacaa	tattagtcc	ttatattaca	1020
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<210> 17
 <211> 1820
 <212> DNA
 <213> Babesia microti

<400> 17

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aataatgagt	ggatgtttca	gtcttgaggc	tctttaacaa	gagtgttgct	ttgtagtcaa	120
agacaaagt	attogtcatg	cgcattcgc	agccaccatc	atcatcaggc	gacgacgggt	180
ctctttcatt	atcctcgggc	ttattattgc	aaccatgaca	cccttcttta	caaaagtctt	240
tttttttcag	cgggtgtctga	gtattatgcg	attttattcc	agccttccca	cttttattct	300
tattgagatt	gccatgctct	tcttcatgag	cgtcacttgt	ttcctgcggg	gtctgagtat	360
catacgattt	tattccagca	tttccacttt	tattcttatt	gattttgtca	tgcccttctt	420
cacactcttc	acatattttct	tgcgttgtct	gagtatcatg	cgattttctt	tcagccttct	480
cacttttatt	cgtattgatt	ttgtcatgcc	cttcttcatg	agcgtcactt	gtttcctgog	540
gtgtctgagt	atcatacgat	tttattccag	catttccact	tttattctta	ttgattttgt	600
catgcccttc	ttcacactct	tcacatattt	cttgcgttgt	ctgagtatca	tacgatttta	660
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gtaagtgtgc	aagctcttca	tatatttctt	gcgggtgtctg	agtatcatgc	gattttcttt	900
cagtcttctc	actttttattc	gtattgagtt	tgccattccc	ttcttcatga	tcgtcacttg	960
tttcttgccg	cgttagtctc	attaagtgtg	caagctcttc	atcatctatt	gaatggtatg	1020
gagctgtatc	ttcccagggt	ggttgaatta	tgtcattctc	gccgatttta	aatgatgggt	1080


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<210> 19
<211> 310
<212> PRT
<213> Babesia microti
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[illegible]

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<210> 20
<211> 367
<212> PRT
<213> Babesia microti
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<400> 20

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20      25      30
Pro Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Val
35      40      45
Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly
50      55      60
Thr Gly Trp Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro
65      70      75      80
Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly
85      90      95
Trp Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp Ser Ser Glu
100     105     110
Arg Phe Gly Tyr Gln Leu Leu Pro Tyr Ser Arg Arg Ile Val Ile Phe
115     120     125
Asn Glu Val Cys Leu Ser Tyr Ile Tyr Lys His Ser Val Met Ile Leu
130     135     140
Glu Arg Asp Arg Val Asn Asp Gly His Lys Asp Tyr Ile Glu Glu Lys
145     150     155     160
Thr Lys Glu Lys Asn Lys Leu Lys Lys Glu Leu Glu Lys Cys Phe Pro
165     170     175
Glu Gln Tyr Ser Leu Met Lys Lys Glu Glu Leu Ala Arg Ile Phe Asp
180     185     190
Asn Ala Ser Thr Ile Ser Ser Lys Tyr Lys Leu Leu Val Asp Glu Ile
195     200     205
Ser Asn Lys Ala Tyr Gly Thr Leu Glu Gly Pro Ala Ala Asp Asn Phe
210     215     220
Asp His Phe Arg Asn Ile Trp Lys Ser Ile Val Leu Lys Asp Met Phe
225     230     235     240
Ile Tyr Cys Asp Leu Leu Leu Gln His Leu Ile Tyr Lys Phe Tyr Tyr
245     250     255
Asp Asn Thr Val Asn Asp Ile Lys Lys Asn Phe Asp Glu Ser Lys Ser
260     265     270
Lys Ala Leu Val Leu Arg Asp Lys Ile Thr Lys Lys Asp Gly Asp Tyr
275     280     285
Asn Thr His Phe Glu Asp Met Ile Lys Glu Leu Asn Ser Ala Ala Glu
290     295     300
Glu Phe Asn Lys Ile Val Asp Ile Met Ile Ser Asn Ile Gly Asp Tyr
305     310     315     320
Asp Glu Tyr Asp Ser Ile Ala Ser Phe Lys Pro Phe Leu Ser Met Ile
325     330     335
Thr Glu Ile Thr Lys Ile Thr Lys Val Ser Asn Val Ile Ile Pro Gly
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Ile Lys Ala Leu Thr Leu Thr Val Phe Leu Ile Phe Ile Thr Lys
355     360     365

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<210> 21

<211> 492

<212> PRT

<213> Babesia microti

<400> 21

Met Tyr Lys Ile Lys Ile Ser Asp Tyr Ile Ile Glu Phe Asp Asp Asn

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			20					25					30				
Glu	His	Asn	Asn	Pro	Val	Leu	Ile	Glu	Phe	Tyr	Val	Ser	Lys	Lys	Gly		
		35					40					45					
Ser	Ile	Cys	Tyr	Tyr	Phe	Tyr	Ser	Met	Asn	Asn	Asp	Thr	Asn	Lys	Trp		
	50					55					60						
Asn	Asn	His	Lys	Ile	Lys	Tyr	Asp	Lys	Arg	Phe	Asn	Glu	His	Thr	Asp		
65					70					75					80		
Met	Asn	Gly	Ile	His	Tyr	Tyr	Tyr	Ile	Asp	Gly	Ser	Leu	Leu	Ala	Ser		
				85					90					95			
Gly	Glu	Val	Thr	Ser	Asn	Phe	Arg	Tyr	Ile	Ser	Lys	Glu	Tyr	Glu	Tyr		
			100					105					110				
Glu	His	Thr	Glu	Leu	Ala	Lys	Glu	His	Cys	Lys	Lys	Glu	Lys	Cys	Val		
		115					120					125					
Asn	Val	Asp	Asn	Ile	Glu	Asp	Asn	Asn	Leu	Lys	Ile	Tyr	Ala	Lys	Gln		
	130					135					140						
Phe	Lys	Ser	Val	Val	Thr	Thr	Pro	Ala	Asp	Val	Ala	Gly	Val	Ser	Asp		
145					150					155					160		
Gly	Phe	Phe	Ile	Arg	Gly	Gln	Asn	Leu	Gly	Ala	Val	Gly	Ser	Val	Asn		
				165					170					175			
Glu	Gln	Pro	Asn	Thr	Val	Gly	Met	Ser	Leu	Glu	Gln	Phe	Ile	Lys	Asn		
			180					185					190				
Glu	Leu	Tyr	Ser	Phe	Ser	Asn	Glu	Ile	Tyr	His	Thr	Ile	Ser	Ser	Gln		
		195					200					205					
Ile	Ser	Asn	Ser	Phe	Leu	Ile	Met	Met	Ser	Asp	Ala	Ile	Val	Lys	His		
	210					215					220						
Asp	Asn	Tyr	Ile	Leu	Lys	Lys	Glu	Gly	Glu	Gly	Cys	Glu	Gln	Ile	Tyr		
225					230					235					240		
Asn	Tyr	Glu	Glu	Phe	Ile	Glu	Lys	Leu	Arg	Gly	Ala	Arg	Ser	Glu	Gly		
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Asn	Asn	Met	Phe	Gln	Glu	Ala	Leu	Ile	Arg	Phe	Arg	Asn	Ala	Ser	Ser		
		260						265					270				
Glu	Glu	Met	Val	Asn	Ala	Ala	Ser	Tyr	Leu	Ser	Ala	Ala	Leu	Phe	Arg		
		275					280					285					
Tyr	Lys	Glu	Phe	Asp	Asp	Glu	Leu	Phe	Lys	Lys	Ala	Asn	Asp	Asn	Phe		
	290					295					300						
Gly	Arg	Asp	Asp	Gly	Tyr	Asp	Phe	Asp	Tyr	Ile	Asn	Thr	Lys	Lys	Glu		
305					310					315					320		
Leu	Val	Ile	Leu	Ala	Ser	Val	Leu	Asp	Gly	Leu	Asp	Leu	Ile	Met	Glu		
				325					330					335			
Arg	Leu	Ile	Glu	Asn	Phe	Ser	Asp	Val	Asn	Asn	Thr	Asp	Asp	Ile	Lys		
			340					345					350				
Lys	Ala	Phe	Asp	Glu	Cys	Lys	Ser	Asn	Ala	Ile	Ile	Leu	Lys	Lys	Lys		
		355					360					365					

435 440 445
 Thr Glu Ser Gly Gly Ala Gly Ser Gly Thr Gly Thr Ser Val Ser Ala
 450 455 460
 Thr Ser Thr Leu Thr Gly Asn Gly Gly Thr Glu Ser Gly Gly Thr Ala
 465 470 475 480
 Gly Thr Thr Thr Ser Ser Gly Thr Trp Phe Gly Lys
 485 490

<210> 22
 <211> 138
 <212> PRT
 <213> Babesia microti

<400> 22
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 Gly Gln Pro Val Pro Leu Gly Pro Ala Ser Leu Gly Pro Pro Ala
 35 40 45
 Ser Leu Gly Pro Pro Ala Ser Leu Gly Gln Pro Val Pro Leu Gly Pro
 50 55 60
 Pro Ala Ser Leu Gly Pro Pro Ala Ser Leu Gly Pro Pro Ala Ser Leu
 65 70 75 80
 Gly Pro Pro Ala Ser Leu Gly Pro Pro Ala Ser Leu Gly Pro Pro Ala
 85 90 95
 Ser Leu Gly Pro Pro Ala Ser Leu Gly Pro Pro Ala Ser Leu Gly Pro
 100 105 110
 Thr Val Pro Leu Gly Pro Pro Ala Ser Arg Ser Val Ser Pro Ala Lys
 115 120 125
 Thr Ala Pro Leu Ile Lys Lys Ser Val Ile
 130 135

<210> 23
 <211> 303
 <212> PRT
 <213> Babesia microti

<400> 23
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 Ile Thr Leu Phe Leu Met Ser Gly Ala Val Phe Ala Gly Asp Thr Asp
 20 25 30
 Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly Pro Ser Glu Ala Gly
 35 40 45
 Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu
 50 55 60
 Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro
 65 70 75 80
 Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly
 85 90 95
 Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu
 100 105 110
 Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro

115 120 125
 Ser Glu Arg Phe Gly Tyr Gln Leu Leu Trp Tyr Ser Arg Arg Ile Val
 130 135 140
 Ile Phe Asn Glu Ile Tyr Leu Ser His Ile Tyr Glu His Ser Val Met
 145 150 155 160
 Ile Leu Glu Arg Asp Arg Val Asn Asp Gly His Lys Asp Tyr Ile Glu
 165 170 175
 Glu Lys Thr Lys Glu Lys Asn Lys Leu Lys Lys Glu Leu Glu Lys Cys
 180 185 190
 Phe Pro Glu Gln Tyr Ser Leu Met Lys Lys Glu Glu Leu Ala Arg Ile
 195 200 205
 Ile Asp Asn Ala Ser Thr Ile Ser Ser Lys Tyr Lys Leu Leu Val Asp
 210 215 220
 Glu Ile Ser Asn Lys Ala Tyr Gly Thr Leu Glu Gly Pro Ala Ala Asp
 225 230 235 240
 Asp Phe Asp His Phe Arg Asn Ile Trp Lys Ser Ile Val Pro Lys Asn
 245 250 255
 Met Phe Leu Tyr Cys Asp Leu Leu Leu Lys His Leu Ile Arg Lys Phe
 260 265 270
 Tyr Cys Asp Asn Thr Ile Asn Asp Ile Lys Lys Asn Phe Asp Asp Ile
 275 280 285
 Glu Lys Leu Gly Cys Phe Gln Ala Arg Ser Phe Leu Pro Val Asn
 290 295 300

<210> 24

<211> 592

<212> PRT

<213> Babesia microti

<400> 24

Met Met Lys Phe Asn Ile Asp Lys Ile Ile Leu Ile Asn Leu Ile Val
 1 5 10 15
 Leu Leu Asn Arg Asn Val Val Tyr Cys Val Asp Thr Asn Asn Ser Ser
 20 25 30
 Leu Ile Glu Ser Gln Pro Val Thr Thr Asn Ile Asp Thr Asp Asn Thr
 35 40 45
 Ile Thr Thr Asn Lys Tyr Thr Gly Thr Ile Ile Asn Ala Asn Ile Val
 50 55 60
 Glu Tyr Arg Glu Phe Glu Asp Glu Pro Leu Thr Ile Gly Phe Arg Tyr
 65 70 75 80
 Thr Ile Asp Lys Ser Gln Gln Asn Lys Leu Ser His Pro Asn Lys Ile
 85 90 95
 Asp Lys Ile Lys Phe Ser Asp Tyr Ile Ile Glu Phe Asp Asp Asn Ala
 100 105 110
 Lys Leu Pro Thr Asp Asn Val Ile Cys Ile Ser Ile Tyr Thr Cys Lys
 115 120 125
 His Asn Asn Pro Val Leu Ile Arg Phe Ser Cys Ser Ile Glu Lys Tyr
 130 135 140
 Tyr Tyr His Tyr Phe Tyr Ser Met Asn Asn Asp Thr Asn Lys Trp Asn
 145 150 155 160
 Asn His Lys Leu Lys Tyr Asp Lys Thr Tyr Asn Glu Tyr Thr Asp Asn
 165 170 175
 Asn Gly Val Asn Tyr Tyr Lys Ile Tyr Tyr Ser Asp Lys Gln Asn Ser
 180 185 190

```

Pro Thr Asn Gly Asn Glu Tyr Glu Asp Val Ala Leu Ala Arg Ile His
      195      200      205
Cys Asn Glu Glu Arg Cys Ala Asn Val Lys Val Asp Lys Ile Lys Tyr
      210      215      220
Lys Asn Leu Glu Ile Tyr Val Lys Gln Leu Gly Thr Ile Ile Asn Ala
225      230      235      240
Asn Ile Val Glu Tyr Leu Val Phe Glu Asp Glu Pro Leu Thr Ile Gly
      245      250      255
Phe Arg Tyr Thr Ile Asp Lys Ser Gln Gln Asn Glu Leu Ser His Pro
      260      265      270
Asn Lys Ile Tyr Lys Ile Lys Phe Ser Asp Tyr Ile Ile Glu Phe Asp
      275      280      285
Asp Asp Ala Lys Leu Thr Thr Ile Gly Thr Val Glu Asp Ile Thr Ile
      290      295      300
Tyr Thr Cys Lys His Asn Asn Pro Val Leu Ile Arg Phe Ser Cys Ser
305      310      315      320
Ile Glu Lys Tyr Tyr Tyr Tyr Tyr Phe Tyr Ser Met Asn Asn Asn Thr
      325      330      335
Asn Lys Trp Asn Asn His Asn Leu Lys Tyr Asp Asn Arg Phe Lys Glu
      340      345      350
His Ser Asp Lys Asn Gly Ile Asn Tyr Tyr Glu Ile Ser Ala Phe Lys
      355      360      365
Trp Ser Phe Ser Cys Phe Phe Val Asn Lys Tyr Glu His Lys Glu Leu
      370      375      380
Ala Arg Ile His Cys Asn Glu Glu Arg Cys Ala Asn Val Lys Val Asp
385      390      395      400
Lys Ile Lys Tyr Lys Asn Leu Glu Ile Tyr Val Lys Gln Leu Gly Thr
      405      410      415
Ile Ile Asn Ala Asn Ile Val Glu Tyr Leu Val Phe Glu Asp Glu Pro
      420      425      430
Leu Thr Ile Gly Phe Arg Tyr Thr Ile Asp Lys Ser Gln Gln Asn Glu
      435      440      445
Leu Ser His Pro Asn Lys Ile Tyr Lys Ile Lys Phe Ser Asp Tyr Ile
      450      455      460
Ile Glu Phe Asp Asp Asp Ala Lys Leu Thr Thr Ile Gly Thr Val Glu
465      470      475      480
Asp Ile Thr Ile Tyr Thr Cys Lys His Asn Asn Pro Val Leu Ile Arg
      485      490      495
Phe Ser Cys Ser Ile Glu Lys Tyr Tyr Tyr Tyr Phe Tyr Ser Met
      500      505      510
Asn Asn Asn Thr Asn Lys Trp Asn Asn His Asn Leu Lys Tyr Asp Asn
      515      520      525
Arg Phe Lys Glu His Ser Asp Lys Asn Gly Ile Asn Tyr Tyr Glu Ile
      530      535      540
Ser Ala Phe Lys Trp Ser Phe Ser Cys Phe Phe Val Asn Lys Tyr Glu
545      550      555      560
His Lys Glu Leu Ala Arg Ile His Cys Asn Glu Glu Lys Cys Val Asn
      565      570      575
Val Lys Val Asp Asn Ile Gly Asn Lys Asn Leu Glu Ile Tyr Val Lys
      580      585      590

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<210> 25
<211> 463
<212> PRT

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<400> 25

Ile	Ile	Met	Lys	Ile	Asn	Ile	Asp	Asn	Ile	Ile	Leu	Ile	Asn	Leu	Ile
1				5				10					15		
Ile	Leu	Leu	Asn	Arg	Asn	Val	Val	Tyr	Cys	Val	Asp	Lys	Asn	Asp	Val
			20					25					30		
Ser	Leu	Trp	Lys	Ser	Lys	Pro	Ile	Thr	Thr	Val	Ser	Thr	Thr	Asn	Asp
		35					40					45			
Thr	Ile	Thr	Asn	Lys	Tyr	Thr	Ser	Thr	Val	Ile	Asn	Ala	Asn	Phe	Ala
	50					55					60				
Ser	Tyr	Arg	Glu	Phe	Glu	Asp	Arg	Glu	Pro	Leu	Thr	Ile	Gly	Phe	Glu
65				70						75					80
Tyr	Met	Ile	Asp	Lys	Ser	Gln	Gln	Asp	Lys	Leu	Ser	His	Pro	Asn	Lys
				85					90					95	
Ile	Asp	Lys	Ile	Lys	Ile	Ser	Asp	Tyr	Ile	Ile	Glu	Phe	Asp	Asp	Asn
			100					105					110		
Ala	Lys	Leu	Pro	Thr	Gly	Ser	Val	Asn	Asp	Ile	Ser	Ile	Ile	Thr	Cys
		115					120					125			
Lys	His	Asn	Asn	Pro	Val	Leu	Ile	Arg	Phe	Ser	Cys	Leu	Ile	Glu	Gly
	130					135					140				
Ser	Ile	Cys	Tyr	Tyr	Phe	Tyr	Leu	Leu	Asn	Asn	Asp	Thr	Asn	Lys	Trp
145					150					155					160
Asn	Asn	His	Lys	Leu	Lys	Tyr	Asp	Lys	Thr	Tyr	Asn	Glu	His	Thr	Asp
			165						170					175	
Asn	Asn	Gly	Ile	Asn	Tyr	Tyr	Lys	Ile	Asp	Tyr	Ser	Glu	Ser	Thr	Glu
		180						185					190		
Pro	Thr	Thr	Glu	Ser	Thr	Thr	Cys	Phe	Cys	Phe	Arg	Lys	Lys	Asn	His
		195					200					205			
Lys	Ser	Glu	Arg	Lys	Glu	Leu	Glu	Asn	Tyr	Lys	Tyr	Glu	Gly	Thr	Glu
	210					215					220				
Leu	Ala	Arg	Ile	His	Cys	Asn	Lys	Gly	Lys	Cys	Val	Lys	Leu	Gly	Asp
225					230					235					240
Ile	Lys	Ile	Lys	Asp	Lys	Asn	Leu	Glu	Ile	Tyr	Val	Lys	Gln	Leu	Met
			245						250					255	
Ser	Val	Asn	Thr	Pro	Val	Asn	Phe	Asp	Asn	Pro	Thr	Ser	Ile	Asn	Leu
			260					265					270		
Pro	Thr	Val	Ser	Thr	Thr	Asn	Asp	Thr	Ile	Thr	Asn	Lys	Tyr	Thr	Gly
		275					280					285			
Thr	Ile	Ile	Asn	Ala	Asn	Ile	Val	Glu	Tyr	Cys	Glu	Phe	Glu	Asp	Glu
	290					295					300				
Pro	Leu	Thr	Ile	Gly	Phe	Arg	Tyr	Thr	Ile	Asp	Lys	Ser	Gln	Gln	Asn
305					310					315					320
Lys	Leu	Ser	His	Pro	Asn	Lys	Ile	Asp	Lys	Ile	Lys	Phe	Phe	Asp	Tyr
			325						330					335	
Ile	Ile	Glu	Phe	Asp	Asp	Asp	Val	Lys	Leu	Pro	Thr	Ile	Gly	Thr	Val
			340					345					350		
Asn	Ile	Ile	Tyr	Ile	Tyr	Thr									

				405					410				415				
Val	Leu	Arg	Lys	Cys	Ser	Ser	Tyr	Thr	Arg	Lys	Asn	Glu	Tyr	Glu	His		
			420					425					430				
Lys	Glu	Leu	Ala	Arg	Ile	His	Cys	Asn	Glu	Glu	Lys	Cys	Val	Asn	Val		
		435					440					445					
Lys	Val	Asp	Asn	Ile	Glu	Lys	Lys	Asn	Leu	Glu	Ile	Tyr	Val	Lys			
	450					455					460						

<210> 26

<211> 297

<212> PRT

<213> Babesia microti

<400> 26

Arg	Ala	Ala	Arg	Ala	Asp	Tyr	Tyr	Lys	Tyr	Leu	Val	Asp	Glu	Tyr	Ser		
1				5					10					15			
Ser	Pro	Arg	Glu	Glu	Arg	Glu	Leu	Ala	Arg	Val	His	Cys	Asn	Glu	Glu		
		20					25						30				
Lys	Cys	Val	Lys	Leu	Asp	Gly	Ile	Lys	Phe	Lys	Asp	Lys	Asn	Leu	Glu		
	35					40						45					
Ile	Tyr	Val	Lys	Gln	Leu	Met	Ser	Val	Asn	Thr	Pro	Val	Val	Phe	Asp		
	50				55						60						
Asn	Asn	Thr	Leu	Ile	Asn	Pro	Thr	Ser	Ser	Ser	Gly	Ala	Thr	Asp	Asp		
65				70					75					80			
Ile	Thr	Tyr	Glu	Leu	Ser	Val	Glu	Ser	Gln	Pro	Val	Pro	Thr	Asn	Ile		
			85					90						95			
Asp	Thr	Gly	Asn	Asn	Ile	Thr	Thr	Asn	Thr	Ser	Asn	Asn	Asn	Leu	Ile		
			100					105						110			
Lys	Ala	Lys	Phe	Leu	Tyr	Asn	Phe	Asn	Leu	Pro	Gly	Lys	Pro	Ser	Thr		
	115						120					125					
Gly	Leu	Phe	Glu	Tyr	Thr	Ile	Asp	Lys	Ser	Glu	Gln	Asn	Lys	Leu	Ser		
	130					135					140						
His	Pro	Asn	Lys	Ile	Asp	Lys	Ile	Lys	Phe	Ser	Asp	Tyr	Ile	Ile	Glu		
145				150					155					160			
Phe	Asp	Asp	Asp	Ala	Lys	Leu	Pro	Thr	Ile	Gly	Thr	Val	Asn	Ile	Ile		
			165					170						175			
Ser	Ile	Ile	Thr	Cys	Lys	His	Asn	Asn	Pro	Val	Leu	Val	Glu	Phe	Ile		
		180					185						190				
Val	Ser	Thr	Glu	Ile	Tyr	Cys	Tyr	Tyr	Asn	Tyr	Phe	Tyr	Ser	Met	Asn		
		195				200						205					
Asn	Asn	Thr	Asn	Lys	Trp	Asn	Asn	His	Lys	Leu	Lys	Tyr	Asp	Lys	Arg		
	210					215					220						
Tyr	Lys	Glu	Glu	Tyr	Thr	Asp	Asp	Asn	Gly	Ile	Asn	Tyr	Tyr	Lys	Leu		
225				230					235					240			
Asn	Asp	Ser	Glu	Pro	Thr	Glu	Ser	Thr	Glu	Ser	Thr	Thr	Cys	Phe	Cys		
			245					250						255			
Phe	Arg	Lys	Lys	Asn	His	Lys	Tyr	Glu	Asn	Glu	Arg	Thr	Ala	Leu	Ala		
		260					265						270				
Lys	Glu	His	Cys	Asn	Glu	Glu	Arg	Cys	Val	Lys	Val	Asp	Asn	Ile	Lys		
	275					280						285					
Asp	Asn	Asn	Leu	Glu	Ile	Tyr	Leu	Lys									
	290					295											

<210> 27

<211> 121
 <212> PRT
 <213> Babesia microti

<400> 27
 Leu Trp Phe Ile Lys Met Val Ser Phe Lys Ser Ile Leu Val Pro Tyr
 1 5 10 15
 Ile Thr Leu Phe Leu Met Ser Gly Ala Val Phe Ala Ser Asp Thr Asp
 20 25 30
 Pro Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly
 35 40 45
 Gly Pro Ser Gly Thr Val Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu
 50 55 60
 Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Gly Pro
 65 70 75 80
 Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly
 85 90 95
 Trp Ser Ser Glu Arg Phe Gly Tyr Gln Leu Leu Pro Tyr Ser Arg Arg
 100 105 110
 Ile Val Thr Phe Asn Glu Val Cys Leu
 115 120

<210> 28
 <211> 267
 <212> PRT
 <213> Babesia microti

<400> 28
 Leu Trp Phe Ile Lys Met Val Ser Phe Lys Ser Ile Leu Val Pro Tyr
 1 5 10 15
 Ile Thr Leu Phe Leu Met Ser Gly Ala Val Phe Ala Ser Asp Thr Asp
 20 25 30
 Pro Glu Ala Gly Gly Pro Ser Gly Thr Val Gly Pro Ser Glu Ala Gly
 35 40 45
 Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser Glu
 50 55 60
 Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro
 65 70 75 80
 Ser Glu Ala Gly Trp Ser Ser Glu Arg Phe Gly Tyr Gln Leu Leu Pro
 85 90 95
 Tyr Ser Arg Arg Ile Val Thr Phe Asn Glu Val Cys Leu Ser Tyr Ile
 100 105 110
 Tyr Lys His Ser Val Met Ile Leu Glu Arg Asp Arg Val Asn Asp Gly
 115 120 125
 His Lys Asp Tyr Ile Glu Glu Lys Thr Lys Glu Lys Asn Lys Leu Lys
 130 135 140
 Lys Glu Leu Glu Lys Cys Phe Pro Glu Gln Tyr Ser Leu Met Lys Lys
 145 150 155 160
 Glu Glu Leu Ala Arg Ile Phe Asp Asn Ala Ser Thr Ile Ser Ser Lys
 165 170 175
 Tyr Lys Leu Leu Val Asp Glu Ile Ser Asn Lys Ala Tyr Gly Thr Leu
 180 185 190
 Glu Gly Pro Ala Ala Asp Asn Phe Asp His Phe Arg Asn Ile Trp Lys
 195 200 205

Ser Ile Val Leu Lys Asp Met Phe Ile Tyr Cys Asp Leu Leu Leu Gln
 210 215 220
 His Leu Ile Tyr Lys Phe Tyr Tyr Asp Asn Thr Ile Asn Asp Ile Lys
 225 230 235 240
 Lys Asn Phe Asp Glu Ser Lys Ser Lys Ala Leu Val Leu Arg Asp Lys
 245 250 255
 Ile Thr Lys Lys Asp Val Tyr Val Asn Asp His
 260 265

<210> 29

<211> 16

<212> PRT

<213> Babesia microti

<400> 29

Ala Trp Thr Phe Ser Val Leu Glu Leu Gln Glu Phe Ser Tyr Thr Val
 1 5 10 15

<210> 30

<211> 465

<212> PRT

<213> Babesia microti

<400> 30

Met Leu Thr Phe Gly Asn Ile Arg Phe His Asn Ile Asn Leu Pro Pro
 1 5 10 15
 Phe Ser Leu Gly Ile Ile His Ser Ile Thr Val Glu Lys Ala Ile Asn
 20 25 30
 Ser Glu Asp Phe Asp Gly Ile Gln Thr Leu Leu Gln Val Ser Ile Ile
 35 40 45
 Ala Ser Tyr Gly Pro Ser Gly Asp Tyr Ser Ser Phe Val Phe Thr Pro
 50 55 60
 Val Val Thr Ala Asp Thr Asn Val Phe Tyr Lys Leu Glu Thr Asp Phe
 65 70 75 80
 Lys Leu Asp Val Asp Val Ile Thr Lys Thr Ser Leu Glu Leu Pro Thr
 85 90 95
 Ser Val Pro Gly Phe His Tyr Thr Glu Thr Ile Tyr Gln Gly Thr Glu
 100 105 110
 Leu Ser Lys Phe Ser Lys Pro Gln Cys Lys Leu Asn Asp Pro Pro Ile
 115 120 125
 Thr Thr Gly Ser Gly Leu Gln Ile Ile His Asp Gly Leu Asn Asn Ser
 130 135 140
 Thr Ile Ile Thr Asn Lys Glu Val Asn Val Asp Gly Thr Asp Leu Val
 145 150 155 160
 Phe Phe Glu Leu Leu Pro Pro Ser Asp Gly Ile Pro Thr Leu Arg Ser
 165 170 175
 Lys Leu Phe Pro Val Leu Lys Ser Ile Pro Met Ile Ser Thr Gly Val
 180 185 190
 Asn Glu Leu Leu Glu Val Leu Glu Asn Pro Ser Phe Pro Ser Ala
 195 200 205
 Ile Ser Asn Tyr Thr Gly Leu Thr Gly Arg Leu Asn Lys Leu Leu Thr
 210 215 220
 Val Leu Asp Gly Ile Val Asp Ser Ala Ile Ser Val Lys Thr Thr Glu
 225 230 235 240

Thr Val Pro Asp Asp Ala Glu Thr Ser Ile Ser Ser Leu Lys Ser Leu
 245 250 255
 Ile Lys Ala Ile Arg Asp Asn Ile Thr Thr Arg Asn Glu Val Thr
 260 265 270
 Lys Asp Asp Val Tyr Ala Leu Lys Lys Ala Leu Thr Cys Leu Thr Thr
 275 280 285
 His Leu Ile Tyr His Ser Lys Val Asp Gly Ile Ser Phe Asp Met Leu
 290 295 300
 Gly Thr Gln Lys Asn Lys Ser Ser Pro Leu Gly Lys Ile Gly Thr Ser
 305 310 315 320
 Met Asp Asp Ile Ile Ala Met Phe Ser Asn Pro Asn Met Tyr Leu Val
 325 330 335
 Lys Val Ala Tyr Leu Gln Ala Ile Glu His Ile Phe Leu Ile Ser Thr
 340 345 350
 Lys Tyr Asn Asp Ile Phe Asp Tyr Thr Ile Asp Phe Ser Lys Arg Glu
 355 360 365
 Ala Thr Asp Ser Gly Ser Phe Thr Asp Ile Leu Leu Gly Asn Lys Val
 370 375 380
 Lys Glu Ser Leu Ser Phe Ile Glu Gly Leu Ile Ser Asp Ile Lys Ser
 385 390 395 400
 His Ser Leu Lys Ala Gly Val Thr Gly Gly Ile Ser Ser Ser Ser Leu
 405 410 415
 Phe Asp Glu Ile Phe Asp Glu Leu Asn Leu Asp Gln Ala Thr Ile Arg
 420 425 430
 Thr Leu Val Ala Pro Leu Asp Trp Pro Leu Ile Ser Asp Lys Ser Leu
 435 440 445
 His Pro Ser Leu Lys Met Val Val Val Leu Pro Gly Phe Phe Ile Val
 450 455 460
 Pro
 465

<210> 31
 <211> 128
 <212> PRT
 <213> Babesia microti

<400> 31
 Leu Trp Phe Ile Lys Met Val Ser Phe Lys Ser Ile Leu Val Pro Tyr
 1 5 10 15
 Ile Thr Leu Phe Leu Met Ser Gly Ala Val Phe Ala Ser Asp Thr Asp
 20 25 30
 Pro Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Val
 35 40 45
 Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly
 50 55 60
 Thr Gly Trp Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro
 65 70 75 80
 Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly
 85 90 95
 Trp Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp Ser Ser Glu
 100 105 110
 Arg Phe Gly Tyr Gln Leu Leu Pro Tyr Ser Arg Arg Ile Val Ile Phe
 115 120 125

<210> 32
 <211> 245
 <212> PRT
 <213> Babesia microti

<400> 32
 Gln Glu Cys Cys Leu Val Val Lys Asp Lys Val Ile Arg His Ala Ala
 1 5 10 15
 Phe Ala Ala Thr Ile Ile Ile Arg Arg Arg Arg Val Ser Phe Ile Ile
 20 25 30
 Leu Gly Leu Ile Ile Ala Thr Met Thr Pro Phe Phe Thr Lys Val Phe
 35 40 45
 Phe Phe Gln Arg Cys Leu Ser Ile Met Arg Phe Tyr Ser Ser Leu Pro
 50 55 60
 Thr Phe Ile Leu Ile Glu Ile Ala Met Leu Phe Phe Met Ser Val Thr
 65 70 75 80
 Cys Phe Leu Arg Cys Leu Ser Ile Ile Arg Phe Tyr Ser Ser Ile Ser
 85 90 95
 Thr Phe Ile Leu Ile Asp Phe Val Met Pro Phe Phe Thr Leu Phe Thr
 100 105 110
 Tyr Phe Leu Arg Cys Leu Ser Ile Met Arg Phe Ser Phe Ser Leu Leu
 115 120 125
 Thr Phe Ile Arg Ile Asp Phe Val Met Pro Phe Phe Met Ser Val Thr
 130 135 140
 Cys Phe Leu Arg Cys Leu Ser Ile Ile Arg Phe Tyr Ser Ser Ile Ser
 145 150 155 160
 Thr Phe Ile Leu Ile Asp Phe Val Met Pro Phe Phe Thr Leu Phe Thr
 165 170 175
 Tyr Phe Leu Arg Cys Leu Ser Ile Ile Arg Phe Tyr Ser Ser Ile Ser
 180 185 190
 Thr Phe Ile Leu Ile Asp Phe Val Met Pro Phe Phe Thr Leu Phe Thr
 195 200 205
 Tyr Phe Leu Arg Cys Leu Ser Ile Met Arg Phe Ser Phe Ser Leu Leu
 210 215 220
 Thr Phe Ile Arg Ile Gly Phe Ala Met Pro Phe Phe Thr Leu Phe Ile
 225 230 235 240
 Tyr Phe Leu Cys Arg
 245

<210> 33
 <211> 293
 <212> PRT
 <213> Babesia microti

<400> 33
 Thr Ala Phe Ala Ala Phe Leu Ala Phe Gly Asn Ile Ser Pro Val Leu
 1 5 10 15
 Ser Ala Gly Gly Ser Gly Gly Asn Gly Gly Asn Gly Gly Gly His Gln
 20 25 30
 Glu Gln Asn Asn Ala Asn Asp Ser Ser Asn Pro Thr Gly Ala Gly Gly
 35 40 45
 Gln Pro Asn Asn Glu Ser Lys Lys Lys Ala Val Lys Leu Asp Leu Asp
 50 55 60
 Leu Met Lys Glu Thr Lys Asn Val Cys Thr Thr Val Asn Thr Lys Leu

	<210>	34																		
	<211>	431																		
	<212>	PRT																		
	<213>	Babesia microti																		
			<400>	34																
Gly	Pro	Lys	Met	Lys	Val	Asn	Ser	Ala	Asn	Leu	Asp	Phe	Arg	Trp	Ala					
1				5					10					15						
Met	Tyr	Met	Leu	Asn	Ser	Lys	Ile	His	Leu	Ile	Glu	Ser	Ser	Leu	Ile					
			20					25					30							
Asp	Asn	Phe	Thr	Leu	Asp	Asn	Pro	Ser	Ala	Tyr	Glu	Ile	Leu	Arg	Val					
		35					40					45								
Ser	Tyr	Asn	Ser	Asn	Glu	Phe	Gln	Val	Gln	Ser	Pro	Gln	Asn	Ile	Asn					
	50					55					60									
Asn	Glu	Met	Glu	Ser	Ser	Thr	Pro	Glu	Ser	Asn	Ile	Ile	Trp	Val	Val					
65					70					75					80					
His	Ser	Asp	Val	Ile	Met	Lys	Arg	Phe	Asn	Cys	Lys	Asn	Arg	Lys	Ser					
				85					90					95						
Leu	Ser	Thr	His	Ser	Leu	Thr	Glu	Asn	Asp	Ile	Leu	Lys	Phe	Gly	Arg					
			100					105					110							
Ile	Glu	Leu	Ser	Val	Lys	Cys	Ile	Ile	Met	Gly	Ala	Gly	Ile	Thr	Ala					
	115						120					125								
Ser	Asp	Leu	Asn	Leu	Lys	Gly	Leu	Gly	Phe	Ile	Ser	Pro	Asp	Lys	Gln					
	130					135					140									

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Ser Thr Asn Val Cys Asn Tyr Phe Glu Asp Met His Glu Ser Tyr His
145          150          155          160
Ile Leu Asp Thr Gln Arg Ala Ser Asp Cys Val Ser Asp Asp Gly Ala
          165          170          175
Asp Ile Asp Ile Ser Asn Phe Asp Met Val Gln Asp Gly Asn Ile Asn
          180          185          190
Ser Val Asp Ala Asp Ser Glu Thr Cys Met Ala Asn Ser Gly Val Thr
          195          200          205
Val Asn Asn Thr Glu Asn Val Ser Asn Ser Glu Asn Phe Gly Lys Leu
          210          215          220
Lys Ser Leu Val Ser Thr Thr Thr Pro Leu Cys Arg Ile Cys Leu Cys
225          230          235          240
Gly Glu Ser Asp Pro Gly Pro Leu Val Thr Pro Cys Asn Cys Lys Gly
          245          250          255
Ser Leu Asn Tyr Val His Leu Glu Cys Leu Arg Thr Trp Ile Lys Gly
          260          265          270
Arg Leu Ser Ile Val Lys Asp Asp Asp Ala Ser Phe Phe Trp Lys Glu
          275          280          285
Leu Ser Cys Glu Leu Cys Gly Lys Pro Tyr Pro Ser Val Leu Gln Val
290          295          300
Asp Asp Thr Glu Thr Asn Leu Met Asp Ile Lys Lys Pro Asp Ala Pro
305          310          315          320
Tyr Val Val Leu Glu Met Arg Ser Asn Ser Gly Asp Gly Cys Phe Val
          325          330          335
Val Ser Val Ala Lys Asn Lys Ala Ile Ile Gly Arg Gly His Glu Ser
          340          345          350
Asp Val Arg Leu Ser Asp Ile Ser Val Ser Arg Met His Ala Ser Leu
          355          360          365
Glu Leu Asp Gly Gly Lys Val Val Ile His Asp Gln Gln Ser Lys Phe
          370          375          380
Gly Thr Leu Val Arg Ala Lys Ala Pro Phe Ser Met Pro Ile Lys Gly
385          390          395          400
Pro Ile Cys Leu Gln Val Ser Ile Phe Phe Leu Asn Leu Lys Ile Ser
          405          410          415
Thr His Ser Leu Thr Met Glu Arg Gly Met Glu His Val Leu Leu
          420          425          430

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<210> 35

<211> 6

<212> PRT

<213> Babesia microti

<220>

<221> VARIANT

<222> (1)...(1)

<223> Xaa = Glutamic Acid or Glycine

<221> VARIANT

<222> (2)...(2)

<223> Xaa = Alanine or Threonine

<221> VARIANT

<222> (3)...(3)

<223> Xaa = Glycine or Valine

<221> VARIANT
 <222> (4)...(4)
 <223> Xaa = Tryptophan or Glycine

<221> VARIANT
 <222> (5)...(5)
 <223> Xaa = Proline or Serine

<400> 35
 Xaa Xaa Xaa Xaa Xaa Ser
 1 5

<210> 36
 <211> 32
 <212> PRT
 <213> Babesia microti

<220>
 <221> VARIANT
 <222> (6)...(6)
 <223> Xaa = Methionine or Isoleucine

<221> VARIANT
 <222> (9)...(9)
 <223> Xaa = Tyrosine or Serine

<221> VARIANT
 <222> (10)...(10)
 <223> Xaa = Serine or Phenylalanine

<221> VARIANT
 <222> (12)...(12)
 <223> Xaa = Leucine or Isoleucine

<221> VARIANT
 <222> (13)...(13)
 <223> Xaa = Proline, Serine or Leucine

<221> VARIANT
 <222> (17)...(17)
 <223> Xaa = Leucine or Arginine

<221> VARIANT
 <222> (19)...(19)
 <223> Xaa = Glutamic Acid, Aspartic Acid or Glycine

<221> VARIANT
 <222> (20)...(20)
 <223> Xaa = Isoleucine or Phenylalanine

<221> VARIANT
 <222> (21)...(21)
 <223> Xaa = Alanine or Valine

<221> VARIANT
 <222> (23)...(23)
 <223> Xaa = Leucine or Proline

<221> VARIANT
 <222> (26)...(26)
 <223> Xaa = Methionine or Threonine

<221> VARIANT
 <222> (27)...(27)
 <223> Xaa = Serine or Leucine

<221> VARIANT
 <222> (28)...(28)
 <223> Xaa = Valine or Phenylalanine

<221> VARIANT
 <222> (29)...(29)
 <223> Xaa = Threonine or Isoleucine

<221> VARIANT
 <222> (30)...(30)
 <223> Xaa = Cysteine or Tyrosine

<400> 36
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 20 25 30

<210> 37
 <211> 1820
 <212> DNA
 <213> Babesia microti

<400> 37
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 taattttaaag aacagacatc tggccattca tgctaagagg tctcttcatt gttgagtggg 180
 aacagccttg tatacgggct tacaacacaa tggaaaaaca cttgttagaa gagatcatgc 240
 ttcactcagt gctagatgtt gatgccagtg atttgcttgg ggtagtaagc cagtactaga 300
 atacaggatg cacttggact ggcaaacaga atacacctgt tgcctgaata gaaactcaca 360
 gagaccgat gctgtcttgt accaacaagg ttctgttctt gggaagaatt tacagatatt 420
 atgttgggaa aagagacacc ctgtatgtgt agaaacaaag aagcacagat cttagatgaa 480
 ttaatataag aatgatactt ctctagaaac aaatgtagtt accaactata ttccagaacc 540
 caatgcggat tcagaatctg tacatgttga aatccaggaa catgataaca tcaatccaca 600
 agacgcttgc gatagtgaac cgctcgaaca aatggattct gataccaggg tgttgcccgga 660
 aagtttggat gaggggttac cacaccaatt ctctagatta gggcaccact cagacatggc 720
 atctgatata aatgatgaag aaccatcatt taaaatcggc gagaatgaca taattcaacc 780
 accctgggaa gatacagctc cataccattc aatagatgat gaagagcttg acaacttaac 840
 gagactaacg gcgcaagaaa caagtgaaga tcatgaagaa gggaatggca aactcaatac 900
 gaataaaaagt gagaagactg aaagaaaatc gcatgatact cagacaccgc aagaaatata 960
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<210> 38
<211> 445
<212> PRT
<213> Babesia microti
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	<400> 38															
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His	Asp	Asn 35	Ile	Asn	Pro	Gln	Asp 40	Ala	Cys	Asp	Ser	Glu 45	Pro	Leu	Glu	
Gln	Met 50	Asp	Ser	Asp	Thr	Arg 55	Val	Leu	Pro	Glu	Ser 60	Leu	Asp	Glu	Gly	
Val 65	Pro	His	Gln	Phe	Ser 70	Arg	Leu	Gly	His 75	His	Ser	Asp	Met	Ala	Ser 80	
Asp	Ile	Asn	Asp 85	Glu	Pro	Ser	Phe	Lys 90	Ile	Gly	Glu	Asn 95	Asp	Ile		
Ile	Gln	Pro	Pro 100	Trp	Glu	Asp	Thr	Ala 105	Pro	Tyr	His	Ser 110	Ile	Asp	Asp	
Glu	Glu	Leu	Asp 115	Asn	Leu	Met	Arg 120	Leu	Thr	Ala	Gln	Glu 125	Thr	Ser	Asp	
Asp	His 130	Glu	Glu	Gly	Asn 135	Gly	Lys	Leu	Asn	Thr	Asn 140	Lys	Ser	Glu	Lys	
Thr 145	Glu	Arg	Lys	Ser 150	His	Asp	Thr	Gln	Thr	Pro 155	Gln	Glu	Ile	Tyr	Glu 160	
Glu	Leu	Asp	Asn 165	Leu	Leu	Arg	Leu	Thr	Ala 170	Gln	Glu	Ile 175	Tyr	Glu	Glu	
Arg	Lys	Glu	Gly 180	His	Gly	Lys	Pro	Asn 185	Thr	Asn	Lys	Ser 190	Glu	Lys	Ala	
Glu	Arg 195	Lys	Ser	His	Asp	Thr	Gln 200	Thr	Thr	Gln	Glu	Ile 205	Cys	Glu	Glu	
Cys	Glu 210	Glu	Gly	His	Asp 215	Lys	Ile	Asn	Lys	Asn 220	Lys	Ser 225	Gly	Asn	Ala	
Gly 225	Ile	Lys	Ser	Tyr 230	Asp	Thr	Gln	Thr	Thr	Gln 235	Glu	Ile	Cys	Glu	Glu 240	
Cys	Glu	Glu	Gly 245	His	Asp	Lys	Ile	Asn 250	Lys	Asn	Lys	Ser 255	Gly	Asn	Ala	
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<210> 39
<211> 32
<212> PRT
<213> Babesia microti

<220>
<221> VARIANT
<222> (3)...(3)
<223> Xaa = Glycine or Aspartic Acid

<221> VARIANT
<222> (5)...(5)
<223> Xaa = Proline or Isoleucine

<221> VARIANT
<222> (7)...(7)
<223> Xaa = Lysine or Threonine

<221> VARIANT
<222> (11)...(11)
<223> Xaa = Glutamic Acid or Glycine

<221> VARIANT
<222> (12)...(12)
<223> Xaa = Lysine or Asparagine

<221> VARIANT
<222> (14)...(14)
<223> Xaa = Glutamic Acid or Glycine

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<221> VARIANT
 <222> (15)...(15)
 <223> Xaa = Isoleucine or Arginine

<221> VARIANT
 <222> (18)...(18)
 <223> Xaa = Histidine or Tyrosine

<221> VARIANT
 <222> (23)...(23)
 <223> Xaa = Threonine or Proline

<221> VARIANT
 <222> (26)...(26)
 <223> Xaa = Isoleucine or Threonine

<221> VARIANT
 <222> (27)...(27)
 <223> Xaa = Cysteine or Serine

<221> VARIANT
 <222> (28)...(28)
 <223> Xaa = Aspartic Acid or Glutamic Acid

<221> VARIANT
 <222> (29)...(29)
 <223> Xaa = Glutamic Acid or Alanine

<221> VARIANT
 <222> (30)...(30)
 <223> Xaa = Cysteine or Histidine

<400> 39
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 Ser Xaa Asp Thr Gln Thr Xaa Gln Glu Xaa Xaa Xaa Xaa Glu Glu
 20 25 30

<210> 40
 <211> 2430
 <212> DNA
 <213> Babesia microti

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 ttggccactt taattataag gatagggaac ctttaacaat agtatttgta tacatgatcg 180
 atgaatcaga acaaaataaa ttatcacatc cgaataaaaat tgataaaaatc aaaattttctg 240
 attatataat tgaatttgat gacaatgcta aattaccaac tggtagtggt attgatttaa 300
 acatctatac ttgcaaacat aataatccag tattaattga attttatgtt tctatagaag 360
 gatctttctg ctattatttc tctcattgaa taatgatata aatgaatgga ataatcacia 420
 aataaaaatat gataaaaaat ataaagaata tacggacatg aatgggtattc attattatta 480
 tattgatggg agtttacttg taagtggcga agttacatct aatttttcggt atatttctaa 540
 agaatatgaa tatgagcata caggattagt aaaaaaatat tgtaatgaag aaagatgtgt 600

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aaaattggat aacattaaga taaaggataa taatttggaa atttatgtga aataatttaa 660
tgaagtataa tattatttat aataattcaa agattaatat aatcaattat tataattaca 720
aaaataatta attgtagaat atttatattat taatcaattc agattataaa tacatatttt 780
tacatacatt tcaattttaa cattcaaatt aatgtcattt ttatctacat tattataatt 840
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tatagtatgt cattatataa catattcaca acgtataaca aatcaatcat taacatatac 960
atatatgata tcattaataa tcaatattta attgatataa taatcaatag tcatctgtaa 1020
tataatcatt gtatactaatt ttattataaa ttattacaaa atacactctt ttacttcatt 1080
ttatttctgt taaatttcat attctaatat tatattcatc tttctcatgt tactttaatc 1140
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gtaataaata ttaaaaaaac ggttaaagtt agtgccttaa ttccaggaat tattacatta 1320
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<210> 41
<211> 128
<212> PRT
<213> Babesia microti

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<400> 41
Tyr Cys Val Asp Lys Asn Asp Val Ser Leu Trp Lys Ser Lys Pro Ile
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Thr Thr Val Ser Thr Thr Asn Asp Thr Ile Thr Asn Thr His Thr Thr
20      25      30
Asn Val Ile Asn Ala Asn Leu Ile Gly His Phe Asn Tyr Lys Asp Arg
35      40      45
Glu Pro Leu Thr Ile Val Phe Val Tyr Met Ile Asp Glu Ser Glu Gln
50      55      60
Asn Lys Leu Ser His Pro Asn Lys Ile Asp Lys Ile Lys Ile Ser Asp
65      70      75      80
Tyr Ile Ile Glu Phe Asp Asp Asn Ala Lys Leu Pro Thr Gly Ser Val
85      90      95
Ile Asp Leu Asn Ile Tyr Thr Cys Lys His Asn Asn Pro Val Leu Ile
100     105     110
Glu Phe Tyr Val Ser Ile Glu Gly Ser Phe Cys Tyr Tyr Phe Ser His
115     120     125

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<210> 42
 <211> 1271
 <212> DNA
 <213> Babesia microti

<400> 42
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 ccatgacact aggggtccag tgctggaggc tattgtggcc cgcctgagtc agaggcccga 180
 acgcgtaagg ctagttggtc tatcggccac gcttccaaac tacgaagacg tggctagatt 240
 tctcactggt aatctagacc gagggctttt ctactttggc agccacttta ggcctgtgcc 300
 cttggagcag gtgtattatg gcgtgaagga gaagaaggct atcaaacgtt tcaacgcaat 360
 caacgaaatt ctctaccaag aggtgattaa cgatgtttct agctgccaaa ttcttgtttt 420
 tgtgcattct agaaaggaaa cgtacaggac ggcaaaatct atcaaagaca cggccctttc 480
 acgggacaac ttggggagcct aaaccctaaa ccctaaaccc taaaccctaa ccctaaaccc 540
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 gaagcaatta tcagaaattg tataactgct tattagctta ttagcttatt agttaggatg 720
 tatgcacatt gatgacaact agatgcagca ccacaatcac taccacgtac caatcatata 780
 ccaataatgt actaataatg taccaataac tatggtttat aaagatgggtg tcattttaa 840
 caatattagt tctttatatt acactctttt taatgagcgg tgctgtcttt gcaggtgata 900
 ccgatcgcgag agctgggtggg cctagtggaa ctggttgggc tagtgaagct ggtgggccta 960
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 ggcctagtga a 1271

<210> 43
 <211> 166
 <212> PRT
 <213> Babesia microti

<400> 43
 Glu Lys Thr His Ile Ile Val Thr Thr Pro Glu Lys Phe Asp Val Val
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 Thr Arg Lys Thr Gly Asn Glu Pro Leu Leu Glu Arg Leu Arg Leu Val
 20 25 30
 Ile Ile Asp Glu Ile His Leu Leu His Asp Thr Arg Gly Pro Val Leu
 35 40 45
 Glu Ala Ile Val Ala Arg Leu Ser Gln Arg Pro Glu Arg Val Arg Leu
 50 55 60
 Val Gly Leu Ser Ala Thr Leu Pro Asn Tyr Glu Asp Val Ala Arg Phe
 65 70 75 80
 Leu Thr Val Asn Leu Asp Arg Gly Leu Phe Tyr Phe Gly Ser His Phe
 85 90 95
 Arg Pro Val Pro Leu Glu Gln Val Tyr Tyr Gly Val Lys Glu Lys Lys
 100 105 110
 Ala Ile Lys Arg Phe Asn Ala Ile Asn Glu Ile Leu Tyr Gln Glu Val
 115 120 125
 Ile Asn Asp Val Ser Ser Cys Gln Ile Leu Val Phe Val His Ser Arg
 130 135 140

Lys Glu Thr Tyr Arg Thr Ala Lys Phe Ile Lys Asp Thr Ala Leu Ser
 145 150 155 160
 Arg Asp Asn Leu Gly Ala
 165

<210> 44
 <211> 154
 <212> PRT
 <213> Babesia microti

<400> 44
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 35 40 45
 Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu
 50 55 60
 Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro
 65 70 75 80
 Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly
 85 90 95
 Trp Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu
 100 105 110
 Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp Pro
 115 120 125
 Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly
 130 135 140
 Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu
 145 150

<210> 45
 <211> 4223
 <212> DNA
 <213> Babesia microti

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 aattaaaaaa aaaaaagact cattcaataa acgggtgggg cagaaagggt acctttccaa 180
 gtgttcttcc atgacgaccc acaatgcaaa gttcttctta caaagaaaag agaaagatcc 240
 actgagtgat aagtaaccca gctggggccg ggcggtggtg gcgcacacct ttaatcccag 300
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 gaagctagcg ctccccaccc catcccaaca cacacacaca cacacacaca cacacacaca 540
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acaatgtata	attgtgatgt	taaagtgcaa	gatagtgaag	tcacagtata	taattgtgat	4140
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tgtaacagcc aataattgtg atg

4223

<210> 46
 <211> 294
 <212> PRT
 <213> Babesia microti

<400> 46
 Leu Trp Phe Ile Lys Met Val Ser Phe Lys Ser Ile Leu Val Pro Tyr
 1 5 10 15
 Ile Thr Leu Phe Leu Met Ser Gly Ala Val Phe Ala Gly Asp Thr Asp
 20 25 30
 Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly Pro Ser Glu Ala Gly
 35 40 45
 Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu
 50 55 60
 Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro
 65 70 75 80
 Ser Glu Ala Gly Gly Pro Ser Gly Thr Val Gly Pro Ser Glu Ala Gly
 85 90 95
 Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu
 100 105 110
 Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro
 115 120 125
 Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly
 130 135 140
 Trp Pro Ser Glu Arg Phe Gly Tyr Gln Leu Leu Trp Tyr Ser Arg Arg
 145 150 155 160
 Ile Val Ile Phe Asn Glu Ile Tyr Leu Ser His Ile Tyr Glu His Ser
 165 170 175
 Val Met Ile Leu Glu Arg Asp Arg Val Asn Asp Gly His Lys Asp Tyr
 180 185 190
 Ile Glu Glu Lys Thr Lys Glu Lys Asn Lys Leu Lys Lys Glu Leu Glu
 195 200 205
 Lys Cys Phe Pro Glu Gln Tyr Ser Leu Met Lys Lys Glu Glu Leu Ala
 210 215 220
 Arg Ile Ile Asp Asn Ala Ser Thr Ile Ser Ser Lys Tyr Lys Leu Leu
 225 230 235 240
 Val Asp Glu Ile Ser Asn Lys Ala Tyr Gly Thr Leu Glu Gly Pro Ala
 245 250 255
 Ala Asp Asp Phe Asp His Phe Arg Asn Ile Trp Lys Ser Ile Val Pro
 260 265 270
 Lys Asn Asn Phe Leu Tyr Cys Asp Leu Leu Leu Lys His Leu Ile Arg
 275 280 285
 Leu Thr Pro Arg Lys Ser
 290

<210> 47
 <211> 30
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic peptide of repeat region of antigen

sequence data from GenBank
 accession number U00001
 version 1.0
 description Babesia microti
 organism Babesia microti
 molecule type cDNA
 source host cell
 vector pUC19
 insert size 1.0 kb
 map data
 map coordinates
 map orientation
 map scale
 map units
 map type
 map version
 map year
 map author
 map date
 map description
 map notes
 map references
 map status
 map title
 map version
 map year

BMNI-3 (SEQ ID NO:3)

<400> 47

Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly
 1 5 10 15
 Trp Thr Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp Ser
 20 25 30

<210> 48

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide of repeat region of antigen
 BMNI-3 (SEQ ID NO:3)

<400> 48

Glu Ala Gly Gly Pro Ser Gly Thr Val Gly Pro Ser Gly Thr Gly Trp
 1 5 10 15
 Pro Ser Glu Ala Gly Trp Gly Ser Glu Ala Gly Trp Ser Ser
 20 25 30

<210> 49

<211> 367

<212> PRT

<213> Babesia microti

<400> 49

Met Val Ser Phe Lys Ser Ile Leu Val Pro Tyr Ile Thr Leu Phe Leu
 1 5 10 15
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 20 25 30
 Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Val Gly Pro Ser Glu Ala
 35 40 45
 Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser
 50 55 60
 Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly
 65 70 75 80
 Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Ser Glu Ala Gly Gly
 85 90 95
 Trp Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp Ser Ser Glu
 100 105 110
 Arg Phe Gly Tyr Gln Leu Leu Pro Tyr Ser Arg Arg Ile Val Ile Phe
 115 120 125
 Asn Glu Val Cys Leu Ser Tyr Ile Tyr Lys His Ser Val Met Ile Leu
 130 135 140
 Glu Arg Asp Arg Val Asn Asp Gly His Lys Asp Tyr Ile Glu Glu Lys
 145 150 155 160
 Thr Lys Glu Lys Asn Lys Leu Lys Lys Glu Leu Glu Lys Cys Phe Pro
 165 170 175
 Glu Gln Tyr Ser Leu Met Lys Lys Glu Leu Ala Arg Ile Phe Asp
 180 185 190
 Asn Ala Ser Thr Ile Ser Ser Lys Tyr Lys Leu Leu Val Asp Glu Ile

195 200 205
 Ser Asn Lys Ala Tyr Gly Thr Leu Glu Gly Pro Ala Ala Asp Asn Phe
 210 215 220
 Asp His Phe Arg Asn Ile Trp Lys Ser Ile Val Leu Lys Asp Met Phe
 225 230 235 240
 Ile Tyr Cys Asp Leu Leu Leu Gln His Leu Ile Tyr Lys Phe Tyr Tyr
 245 250 255
 Asp Asn Thr Val Asn Asp Ile Lys Lys Asn Phe Asp Glu Ser Lys Ser
 260 265 270
 Lys Ala Leu Val Leu Arg Asp Lys Ile Thr Lys Lys Asp Gly Asp Tyr
 275 280 285
 Asn Thr His Phe Glu Asp Met Ile Lys Glu Leu Asn Ser Ala Ala Glu
 290 295 300
 Glu Phe Asn Lys Ile Val Asp Ile Met Ile Ser Asn Ile Gly Asp Tyr
 305 310 315 320
 Asp Glu Tyr Asp Ser Ile Ala Ser Phe Lys Pro Phe Leu Ser Met Ile
 325 330 335
 Thr Glu Ile Thr Lys Ile Thr Lys Val Ser Asn Val Ile Ile Pro Gly
 340 345 350
 Ile Lys Ala Leu Thr Leu Thr Val Phe Leu Ile Phe Ile Thr Lys
 355 360 365

<210> 50

<211> 1908

<212> DNA

<213> Babesia microti

<400> 50

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gagcatacag	aattagcaaa	agagcattgc	aagaaagaaa	aatgtgtaaa	tgtggataac	180
attgaggata	ataatttgaa	aatatatg	aaacagttta	aatctgtagt	tactactcca	240
gctgatgtag	cgggtgtgtc	agatggattt	tttatacgtg	gccaaaatct	tggtgctgtg	300
ggcagtgtaa	atgaacaacc	taatactgtt	ggtatgagtt	tagaacaatt	catcaagaac	360
gagctttatt	cttttagtaa	tgaaatttat	catacaatat	ctagtcaa	cagtaattct	420
ttottaataa	tgatgtctga	tgcaattgtt	aaacatgata	actatatttt	aaaaaaagaa	480
ggtgaaggct	gtgaacaaat	ctacaattat	gaggaattta	tagaaaagtt	gaggggtgct	540
agaagtgagg	ggaataatat	gtttcaggaa	gctctgataa	ggtttaggaa	tgctagtagt	600
gaagaaatgg	ttaatgctgc	aagttatcta	tccgccgccc	ttttcagata	taaggaattt	660
gatgatgaat	tattcaaaaa	ggccaacgat	aattttggac	gcgatgatgg	atatgatttt	720
gattatataa	atacaaagaa	agagttagtt	atacttgcca	gtgtgttgga	tggtttggat	780
ttaataatgg	aacgtttgat	cgaaaatttc	agtgatgtca	ataatacaga	tgatattaag	840
aaggcatttg	acgaatgcaa	atctaattgct	attatattga	agaaaaagat	acttgacaat	900
gatgaagatt	ataagattaa	ttttaggga	atggtgaatg	aagtaacatg	tgcaaacaca	960
aaatttgaag	ccctaaatga	tttgataatt	tccgactgtg	agaaaaaagg	tattaagata	1020
aacagagatg	tgatttcaag	ctacaaattg	cttctttcca	caatcaccta	tattgttgga	1080
gctggagttg	aagctgtaac	tgtttagtgtg	tctgctacat	ctaattggaac	tgaatctggt	1140
ggagctggta	gtggaactgg	aactagtggtg	tctgctacat	ctactttaac	tggtaatggt	1200
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actagtggaa	ctactacgtc	tagtggaact	gctagtggta	aagctggaac	tggaacagct	1320
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actactacgt	ctagtggaa	tggtgctggt	ggagctggta	gtggtggacc	tagtggacat	1440
gcttctaattg	caaaaattcc	tggaataatg	acactaactc	tatttgcatt	attaacattt	1500
attgtaaatt	gaatgaaaca	catgatttat	acattattat	atattacaaa	atttacacat	1560

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tatttatgta tgaacgaacg aacatcttgc tcttaaataa agaaattgag atatatatgg 1620
aaatagatta aagtaacatg agaaagatga atataatatt agaatatgaa atttaacaga 1680
aataaaatga agtaaaagag tgtatcttgc aataatttat aataaattag tatacaatga 1740
ttatattaca aatggctatt aaatatttta ttaattaaat attgattagt aatgatatta 1800
tgtatgtaca tgtaggggtt gattgttata cattgtgaat atattatata attgtatatt 1860
atattgattg atataatgta gaggatattt ttttaaatag tatttaaat 1908

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<210> 51
 <211> 1460
 <212> DNA
 <213> Babesia microti

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<400> 51
aatccaacat ctagcctagt tagtatatat aggttaatat cacattatag attatctttg 60
gatgattggt tattatataa catgtcgtcg aatgacgatt attttgctag ataataaac 120
taccggtgat tctgaggacc tacttttaaag agaataatta acatatctac cagaatcagt 180
tccaatttat gtattttaaa gctaataact actcgaaaac tacggtgaaa atggaaaaac 240
aagtgggaagc tgtatgtcgt ggaaagtcac tacattttat gtgggcaaatt ttaataattc 300
taaataactat gtttttgatg ttaaaaagcg aaaaacacac tttaatgcac attttaacat 360
catctgtata atatatatat cagcgttgaa atcatatggc aaaggtaata aagcgttaca 420
ttttgagcga ataaaggcac atatgcaaac gtatgaagcc ttgtatattt gtggaattat 480
attatgctag taatttgtga ttaataatgg caatatttat atacaaatat tcgagcgttc 540
tatttatatgc atgcacataa ttaatcacia actctcatat catggggcggg tttcgcccat 600
cataaacatt actgttagca ctctggtaga ttagcatggt gaatctctcg atacctgggc 660
tactgttgct ttccgcatat tccttaaatt ctgcaagtgc gggggatgta tatgagatat 720
cttctggtaa tccacccgac atagagccaa catctacttc tctagaaaca aatgtagtta 780
ccaactatat tccagaaccc aatgcggatt cagaatctgt acatgttgaa atccaggac 840
atgataacat caatccacaa gacgcttgcg atagtgaagc gctcgaacaa atggattctg 900
ataccagggt gttgcccgaag agtttgatg aggggggtacc acaccaattc tctagattag 960
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agaatgacat aattcaacca ccctgggaag atacagctcc ataccattca atagatgatg 1080
aagagcttga caacttaatg agactaacgg cgcaagaaac aagtgaagat catgaagaag 1140
ggaatggcaa actcaatacg aataaaagtg agaagactga aagaaaatcg catgatactc 1200
agacaccgca agaaatatat gaagagcttg acaacttact gagactaacg gcacaagaaa 1260
tatatgaaga gcgtaaagaa gggcatggca aacccaatac gaataaaagt gagaaggctg 1320
aaagaaaatc gcatgatact cagacaacgc aagaaatatg tgaagagtgt gaagaaggcg 1380
atgacaaaat caataagaat aaaagtggaa atgctggaat aaaatcgtat gatactcaga 1440
caccgcagga aacaagtgcac

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<210> 52
 <211> 503
 <212> PRT
 <213> Babesia microti

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<400> 52
Lys Arg Phe Asn Glu His Thr Asp Met Asn Gly Ile His Tyr Tyr Tyr
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Ile Asp Gly Ser Leu Leu Ala Ser Gly Glu Val Thr Ser Asn Phe Arg
20          25          30
Tyr Ile Ser Lys Glu Tyr Glu Tyr Glu His Thr Glu Leu Ala Lys Glu
35          40          45
His Cys Lys Lys Glu Lys Cys Val Asn Val Asp Asn Ile Glu Asp Asn
50          55          60
Asn Leu Lys Ile Tyr Ala Lys Gln Phe Lys Ser Val Val Thr Thr Pro

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65					70					75					80
Ala	Asp	Val	Ala	Gly	Val	Ser	Asp	Gly	Phe	Phe	Ile	Arg	Gly	Gln	Asn
				85					90					95	
Leu	Gly	Ala	Val	Gly	Ser	Val	Asn	Glu	Gln	Pro	Asn	Thr	Val	Gly	Met
			100					105					110		
Ser	Leu	Glu	Gln	Phe	Ile	Lys	Asn	Glu	Leu	Tyr	Ser	Phe	Ser	Asn	Glu
		115					120					125			
Ile	Tyr	His	Thr	Ile	Ser	Ser	Gln	Ile	Ser	Asn	Ser	Phe	Leu	Ile	Met
	130						135				140				
Met	Ser	Asp	Ala	Ile	Val	Lys	His	Asp	Asn	Tyr	Ile	Leu	Lys	Lys	Glu
145					150					155					160
Gly	Glu	Gly	Cys	Glu	Gln	Ile	Tyr	Asn	Tyr	Glu	Glu	Phe	Ile	Glu	Lys
			165						170					175	
Leu	Arg	Gly	Ala	Arg	Ser	Glu	Gly	Asn	Asn	Met	Phe	Gln	Glu	Ala	Leu
			180					185					190		
Ile	Arg	Phe	Arg	Asn	Ala	Ser	Ser	Glu	Glu	Met	Val	Asn	Ala	Ala	Ser
	195						200					205			
Tyr	Leu	Ser	Ala	Ala	Leu	Phe	Arg	Tyr	Lys	Glu	Phe	Asp	Asp	Glu	Leu
	210					215					220				
Phe	Lys	Lys	Ala	Asn	Asp	Asn	Phe	Gly	Arg	Asp	Asp	Gly	Tyr	Asp	Phe
225				230						235					240
Asp	Tyr	Ile	Asn	Thr	Lys	Lys	Glu	Leu	Val	Ile	Leu	Ala	Ser	Val	Leu
			245						250					255	
Asp	Gly	Leu	Asp	Leu	Ile	Met	Glu	Arg	Leu	Ile	Glu	Asn	Phe	Ser	Asp
			260					265					270		
Val	Asn	Asn	Thr	Asp	Asp	Ile	Lys	Lys	Ala	Phe	Asp	Glu	Cys	Lys	Ser
			275				280						285		
Asn	Ala	Ile	Ile	Leu	Lys	Lys	Lys	Ile	Leu	Asp	Asn	Asp	Glu	Asp	Tyr
	290				295					300					
Lys	Ile	Asn	Phe	Arg	Glu	Met	Val	Asn	Glu	Val	Thr	Cys	Ala	Asn	Thr
305				310						315					320
Lys	Phe	Glu	Ala	Leu	Asn	Asp	Leu	Ile	Ile	Ser	Asp	Cys	Glu	Lys	Lys
			325						330					335	
Gly	Ile	Lys	Ile	Asn	Arg	Asp	Val	Ile	Ser	Ser	Tyr	Lys	Leu	Leu	Leu
			340					345					350		
Ser	Thr	Ile	Thr	Tyr	Ile	Val	Gly	Ala	Gly	Val	Glu	Ala	Val	Thr	Val
		355					360					365			
Ser	Val	Ser	Ala	Thr	Ser	Asn	Gly	Thr	Glu	Ser	Gly	Gly	Ala	Gly	Ser
	370					375					380				
Gly	Thr	Gly	Thr	Ser	Val	Ser	Ala	Thr	Ser	Thr	Leu	Thr	Gly	Asn	Gly
385				390						395					400
Gly	Thr	Glu	Ser	Gly	Gly	Thr	Ala	Gly	Thr	Thr	Thr	Ser	Ser	Gly	Thr
			405						410					415	
Glu	Ala	Gly	Gly	Thr	Ser	Gly	Thr	Thr	Thr	Ser	Ser	Gly	Ala	Ala	Ser
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500

<210> 53
 <211> 275
 <212> PRT
 <213> Babesia microti

<400> 53

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Met Val Asn Leu Ser Ile Pro Gly Leu Leu Leu Leu Ser Ala Tyr Ser
 1          5          10          15
Leu Asn Ser Ala Ser Ala Gly Asp Val Tyr Glu Ile Ser Ser Gly Asn
 20          25          30
Pro Pro Asp Ile Glu Pro Thr Ser Thr Ser Leu Glu Thr Asn Val Val
 35          40          45
Thr Asn Tyr Ile Pro Glu Pro Asn Ala Asp Ser Glu Ser Val His Val
 50          55          60
Glu Ile Gln Glu His Asp Asn Ile Asn Pro Gln Asp Ala Cys Asp Ser
 65          70          75          80
Glu Pro Leu Glu Gln Met Asp Ser Asp Thr Arg Val Leu Pro Glu Ser
 85          90          95
Leu Asp Glu Gly Val Pro His Gln Phe Ser Arg Leu Gly His His Ser
 100         105         110
Asp Met Ala Ser Asp Ile Asn Asp Glu Glu Pro Ser Phe Lys Ile Gly
 115         120         125
Glu Asn Asp Ile Ile Gln Pro Arg Trp Glu Asp Thr Ala Pro Tyr His
 130         135         140
Ser Ile Asp Asp Glu Glu Leu Asp Asn Leu Met Arg Leu Thr Ala Gln
 145         150         155         160
Glu Thr Ser Asp Asp His Glu Glu Gly Asn Gly Lys Leu Asn Thr Asn
 165         170         175
Lys Ser Glu Lys Thr Glu Arg Lys Ser His Asp Thr Gln Thr Pro Gln
 180         185         190
Glu Ile Tyr Glu Glu Leu Asp Asn Leu Leu Arg Leu Thr Ala Gln Glu
 195         200         205
Ile Tyr Glu Glu Arg Lys Glu Gly His Gly Lys Pro Asn Thr Asn Lys
 210         215         220
Ser Glu Lys Ala Glu Arg Lys Ser His Asp Thr Gln Thr Thr Gln Glu
 225         230         235         240
Ile Cys Glu Glu Cys Glu Glu Gly His Asp Lys Ile Asn Lys Asn Lys
 245         250         255
Ser Gly Asn Ala Gly Ile Lys Ser Tyr Asp Thr Gln Thr Pro Gln Glu
 260         265         270
Thr Ser Asp
 275

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<210> 54
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR Primer

<400> 54

tttcaggtg atacgatcg cg

22

<210> 55
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 55
tggatttcta gaagaatagt tata

24

<210> 56
<211> 306
<212> DNA
<213> Babesia microti

<400> 56
tttcaggtga taccgatcg gaagctggtg ggcctagtgg aactgttggg cccagtgaag 60
ctggtgggcc tagtgaagct ggtgggccta gtggaactgt tgggccagtg gaagctggtg 120
ggcctagtga agctggtggg cctagtggaa ctggttggcc tagtgaagct ggtgggccta 180
gtggaactgt tgggccagtg gaagctggtg ggcctagtga agctggtggg cctagtggaa 240
ctggttggcc tagtgaagct ggtgggccta gtggaagtgg ttggccattg gaaccatttg 300
gatatc 306

<210> 57
<211> 318
<212> DNA
<213> Babesia microti

<400> 57
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ctggtgggcc tagtgaagct ggtgggccta gtggaactgt tgggccagtg gaagctggtg 120
ggcctagtga agctggtggg cctagtggaa ctggttggcc tagtgaagct ggtgggccta 180
gtggaactgt tgggccagtg gaagctggtg ggcctagtga agctggtggg cctagtggaa 240
ctggttggcc tagtgaagct ggtgggccta gtggaagtgg ttggccattg gaaccatttg 300
gatatcacct tctttggt 318

<210> 58
<211> 358
<212> DNA
<213> Babesia microti

<400> 58
tttcaggtga taccgatcg gaagctggtg ggcctagtgg aactgttggg cctagtgaag 60
ctggtgggcc tagtgaagct ggtgggccta gtggaactgt tgggccagtg gaagctggtg 120
ggcctagtga agctggtggg cctagtgaag ctggttggcc tagtgaagct ggtgggccta 180
gtggaactgt tgggccagtg gaagctggtg ggcctagtga agctggttgg cctagtgaag 240
ctggttggcc tagtgaagct ggtgggccta gtggaactgt ttggccagtg gaagctggtt 300
ggcctagtga agctggttgg cctagtgaag ctggttggcc tagtgaagct ggttggcc 358

<210> 59
<211> 409

<212> DNA

<213> Babesia microti

<400> 59

tgcaggtgat	accgatcgcg	aagctggtgg	gcctagtgga	actgttgggc	ctagtgaagc	60
tggtgggcct	agtgaagctg	gtgggcctag	tgaagctggt	gggcctagt	aagctggtgg	120
gcctagtga	gctggtgggc	ctagtgaagc	tggtgggcct	agtgaagctg	gtgggcctag	180
tgaagctggt	gggcctagt	aagctggtgg	gcctagtga	gctggtggc	ctagtgaagc	240
tggttggcct	agtgaagctg	gtgggcctag	tggaaactggt	tggcctagt	aagctggtt	300
gcctagtga	gctggttggc	ctagtgaagc	tggttggcct	agtgaagctg	gttggcctag	360
tgaacgattt	ggatatcagc	ttctttggt	ttctagaaga	atagttata		409

<210> 60

<211> 351

<212> DNA

<213> Babesia microti

<400> 60

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ggcctagtga	agctggtggg	cctagtgaag	ctggtgggcc	tagtgaagct	ggtgggccta	180
gtgaagctgg	tgggcctagt	gaagctggtt	ggcctagtga	agctggttgg	cctagtgaag	240
ctggtgggcc	tagtgggaact	ggttggccta	gtgaagctgg	ttggcctagt	gaagctggtt	300
ggcctagtga	agctggttgg	cctagtgaag	ctggttggcc	tagtgaacga	t	351

<210> 61

<211> 410

<212> DNA

<213> Babesia microti

<400> 61

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tagtgaagct	ggtgggccta	gtgaagctgg	tgggcctagt	gaagctggtg	ggcctagtga	180
agctggtggg	cctagtgaag	ctggtgggcc	tagtgaagct	ggtgggccta	gtgaagctgg	240
ttggcctagt	gaagctggtt	ggcctagtga	agctggtggg	cctagtggaa	ctggttggcc	300
tagtgaagct	ggttggccta	gtgaagctgg	ttggcctagt	gaagctggtt	ggcctagtga	360
agctggttgg	cctagtgaac	gatttggata	tcagottcct	tggatttcta		410

<210> 62

<211> 416

<212> DNA

<213> Babesia microti

<400> 62

ttgcaggtga	taccgatcgc	gaagctggtg	ggcctagtgg	aactgttggg	cctagtgaag	60
ctggtgggcc	tagtgaagct	ggtgggccta	gtgaagctgg	tgggcctagt	gaagctggtg	120
ggcctagtga	agctggtggg	cctagtgaag	ctggtgggcc	tagtgaagct	ggtgggccta	180
gtgaagctgg	tgggcctagt	gaagctggtg	ggcctagtga	agctggtggg	cctagtgaag	240
ctggtgggcc	tagtgaagct	ggttggccta	gtgaagctgg	ttggcctagt	gaagctggtg	300
ggcctagtgg	aactggttgg	cctagtgaag	ctggttggcc	tagtgaagct	ggttggccta	360
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<210> 63

<211> 356
 <212> DNA
 <213> Babesia microti

<400> 63
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 ggcctagtga agctggtggg cctagtgaag ctggtgggcc tagtgaagct ggtgggccta 180
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 ctggttggcc tagtgaagct ggttggccta gtgaagctgg ttggcctagt gaagctggtt 300
 ggcctagtga acgatttggg tatcagcttc tttggtattc tagaagaata gttata 356

<210> 64
 <211> 285
 <212> DNA
 <213> Babesia microti

<400> 64
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 ggcctagtga agctggtggg cctagtgaag ctggtgggcc tagtgaagct ggtgggccta 180
 gtggaactgg ttggcctagt gaagctggtt ggcctagtga agctggttgg cctagtgaag 240
 ctggttggcc tagtgaagct ggttggccta gtgaagctgg ttggc 285

<210> 65
 <211> 342
 <212> DNA
 <213> Babesia microti

<400> 65
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 ggcctagtga agctggtggg cctagtgaag ctggtgggcc tagtgaagct ggtgggccta 180
 gtgaagctgg tgggcctagt ggaactggtt ggcctagtga agctggttgg cctagtgaag 240
 ctggttggcc tagtgaagct ggttggccta gtgaagctgg ttggcctagt gaagctggtt 300
 ggcctagtga acgatttggg tatcagcttc tttggtattc ta 342

<210> 66
 <211> 363
 <212> DNA
 <213> Babesia microti

<400> 66
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 ctggtggggc tagtgaagct ggtgggccta gtgaagctgg tgggcctagt gaagctggtg 120
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 gtgaagctgg tgggcctagt gaagctggtg ggcctagtgg aactggttgg cctagtgaag 240
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 gaa 363

<210> 67
 <211> 363
 <212> DNA

<213> Babesia microti

<400> 67

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ggcctagtga	agctggtggg	cctagtgaag	ctggtggggc	tagtgaagct	ggtgggccta	180
gtgaagctgg	tgggcctagt	gaagctggtg	ggcctagtgg	aactggttgg	cctagtgaag	240
ctggttggcc	tagtgaagct	ggttggccta	gtgaagctgg	ttggcctagt	gaagctgggt	300
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gaa						363

<210> 68

<211> 101

<212> PRT

<213> Babesia microti

<400> 68

Ala	Gly	Asp	Thr	Asp	Arg	Glu	Ala	Gly	Gly	Pro	Ser	Gly	Thr	Val	Gly
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Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Gly	Thr
		20						25				30			
Val	Gly	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser
		35					40					45			
Gly	Thr	Gly	Trp	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Gly	Thr	Val	Gly
		50				55					60				
Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Gly	Thr
65					70					75				80	
Gly	Trp	Pro	Ser	Gly	Thr	Gly	Trp	Pro	Ser	Glu	Val	Gly	Trp	Pro	Ile
				85					90					95	
Glu	Pro	Phe	Gly	Tyr											
			100												

<210> 69

<211> 105

<212> PRT

<213> Babesia microti

<400> 69

Ala	Gly	Asp	Thr	Asp	Arg	Glu	Ala	Gly	Gly	Pro	Ser	Gly	Thr	Val	Gly
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Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Gly	Thr
		20						25				30			
Val	Gly	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser
		35					40					45			
Gly	Thr	Gly	Trp	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Gly	Thr	Val	Gly
		50				55					60				
Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Gly	Thr
65					70					75				80	
Gly	Trp	Pro	Ser	Gly	Thr	Gly	Trp	Pro	Ser	Glu	Val	Gly	Trp	Pro	Asn
				85					90					95	
Glu	Pro	Phe	Gly	Tyr	His	Leu	Leu	Trp							
			100					105							

<210> 70

<211> 118
 <212> PRT
 <213> Babesia microti

<400> 70

Ala	Gly	Asp	Thr	Asp	Arg	Glu	Ala	Gly	Gly	Pro	Ser	Gly	Thr	Val	Gly
1				5				10						15	
Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Glu	Ala
			20					25					30		
Gly	Gly	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser
		35					40					45			
Glu	Ala	Gly	Gly	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Glu	Ala	Gly	Gly
	50					55				60					
Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Glu	Ala	Gly	Trp	Pro	Ser	Glu	Ala
65					70				75					80	
Gly	Trp	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Gly	Thr	Gly	Trp	Pro	Ser
			85					90				95			
Glu	Ala	Gly	Trp	Pro	Ser	Glu	Ala	Gly	Trp	Pro	Ser	Glu	Ala	Gly	Trp
			100					105				110			
Pro	Ser	Glu	Ala	Gly	Trp										
			115												

<210> 71
 <211> 136
 <212> PRT
 <213> Babesia microti

<400> 71

Ala	Gly	Asp	Thr	Asp	Arg	Glu	Ala	Gly	Gly	Pro	Ser	Gly	Thr	Val	Gly
1				5				10						15	
Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Glu	Ala
			20					25				30			
Gly	Gly	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser
		35					40					45			
Glu	Ala	Gly	Gly	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Glu	Ala	Gly	Gly
	50					55				60					
Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Glu	Ala	Gly	Trp	Pro	Ser	Glu	Ala
65					70				75					80	
Gly	Trp	Pro	Ser	Glu	Ala	Gly	Gly	Pro	Ser	Gly	Thr	Gly	Trp	Pro	Ser
			85					90				95			
Glu	Ala	Gly	Trp	Pro	Ser	Glu	Ala	Gly	Trp	Pro	Ser	Glu	Ala	Gly	Trp
			100					105				110			
Pro	Ser	Glu	Ala	Gly	Trp	Pro	Ser	Glu	Arg	Phe	Gly	Tyr	Gln	Leu	Leu
		115				120						125			
Trp	Tyr	Ser	Arg	Arg	Ile	Val	Ile								
			130				135								

<210> 72
 <211> 116
 <212> PRT
 <213> Babesia microti

<400> 72

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 Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser
 35 40 45
 Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly
 50 55 60
 Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala
 65 70 75 80
 Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser
 85 90 95
 Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp
 100 105 110
 Pro Ser Glu Arg
 115

<210> 73
 <211> 136
 <212> PRT
 <213> Babesia microti

<400> 73
 Gly Asp Thr Asp Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly Pro
 1 5 10 15
 Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly
 20 25 30
 Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu
 35 40 45
 Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro
 50 55 60
 Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly
 65 70 75 80
 Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Gly Pro Ser Gly
 85 90 95
 Thr Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro
 100 105 110
 Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Arg Phe
 115 120 125
 Gly Tyr Gln Leu Leu Trp Tyr Ser
 130 135

<210> 74
 <211> 138
 <212> PRT
 <213> Babesia microti

<400> 74
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 1 5 10 15
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 20 25 30
 Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser
 35 40 45
 Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly

50 55 60
 Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala
 65 70 75 80
 Gly Gly Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser
 85 90 95
 Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp
 100 105 110
 Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala
 115 120 125
 Gly Trp Pro Ser Glu Arg Phe Gly Tyr Gln
 130 135

<210> 75

<211> 118

<212> PRT

<213> Babesia microti

<400> 75

Ala Gly Asp Thr Asp Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly
 1 5 10 15
 Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala
 20 25 30
 Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser
 35 40 45
 Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly
 50 55 60
 Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala
 65 70 75 80
 Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser
 85 90 95
 Glu Ala Gly Trp Pro Ser Glu Arg Phe Gly Tyr Gln Leu Leu Trp Tyr
 100 105 110
 Ser Arg Arg Ile Val Ile
 115

<210> 76

<211> 94

<212> PRT

<213> Babesia microti

<400> 76

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 20 25 30
 Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser
 35 40 45
 Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp
 50 55 60
 Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala
 65 70 75 80
 Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp
 85 90

<210> 77
 <211> 113
 <212> PRT
 <213> Babesia microti

<400> 77
 Ala Gly Asp Thr Asp Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly
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 Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala
 20 25 30
 Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser
 35 40 45
 Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly
 50 55 60
 Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala
 65 70 75 80
 Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser
 85 90 95
 Glu Ala Gly Trp Pro Ser Glu Arg Phe Gly Tyr Gln Leu Leu Trp Tyr
 100 105 110
 Ser

<210> 78
 <211> 120
 <212> PRT
 <213> Babesia microti

<400> 78
 Ala Gly Asp Thr Asp Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly
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 20 25 30
 Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser
 35 40 45
 Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly
 50 55 60
 Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala
 65 70 75 80
 Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser
 85 90 95
 Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Arg Phe Gly
 100 105 110
 Tyr Gln Leu Leu Trp Tyr Ser Arg
 115 120

<210> 79
 <211> 120
 <212> PRT
 <213> Babesia microti

<400> 79
 Ala Gly Asp Thr Asp Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly
 1 5 10 15

Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala
 20 25 30
 Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser
 35 40 45
 Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly
 50 55 60
 Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala
 65 70 75 80
 Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser
 85 90 95
 Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Arg Phe Gly
 100 105 110
 Tyr Gln Leu Leu Trp Tyr Ser Arg
 115 120

<210> 80
 <211> 29
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 <213> Artificial Sequence

<220>
 <223> PCR Primer

<400> 80
 cagagcagta ctgatgatat taagaaggc

29

<210> 81
 <211> 43
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR Primer

<400> 81
 caatatgaat tcagtgaata ttacaataa atgttaataa tgc

43

<210> 82
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR Primer

<400> 82
 cataacaata ttccagaacc caatgcggat tc

32

<210> 83
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>

<223> PCR Primer

<400> 83

cgctagaatt cattagaaag ccttaaacad gc

32

<210> 84

<211> 2001

<212> DNA

<213> Babesia

<400> 84

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<210> 85

<211> 666

<212> PRT

<213> Babesia

<400> 85

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5

10

15

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 20 25 30
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 35 40 45
 Thr Cys Ala Asn Thr Lys Phe Glu Ala Leu Asn Asp Leu Ile Ile Ser
 50 55 60
 Asp Cys Glu Lys Lys Gly Ile Lys Ile Asn Arg Asp Val Ile Ser Ser
 65 70 75 80
 Tyr Lys Leu Leu Leu Ser Thr Ile Thr Tyr Ile Val Gly Ala Gly Val
 85 90 95
 Glu Ala Val Thr Val Ser Val Ser Ala Thr Ser Asn Gly Thr Glu Ser
 100 105 110
 Gly Gly Ala Gly Ser Gly Thr Gly Thr Ser Val Ser Ala Thr Ser Thr
 115 120 125
 Leu Thr Gly Asn Gly Gly Thr Glu Ser Gly Gly Thr Ala Gly Thr Thr
 130 135 140
 Thr Ser Ser Gly Thr Glu Ala Gly Gly Thr Ser Gly Thr Thr Thr Ser
 145 150 155 160
 Ser Gly Ala Ala Ser Gly Lys Ala Gly Thr Gly Thr Ala Gly Thr Thr
 165 170 175
 Thr Ser Ser Glu Gly Ala Gly Ser Asp Lys Ala Gly Thr Gly Thr Ser
 180 185 190
 Gly Thr Thr Thr Ser Ser Gly Thr Gly Ala Gly Gly Ala Gly Ser Gly
 195 200 205
 Gly Pro Ser Gly His Ala Ser Asn Ala Lys Ile Pro Gly Ile Met Thr
 210 215 220
 Leu Thr Leu Phe Ala Leu Leu Thr Phe Ile Val Asn Ile Pro Glu Pro
 225 230 235 240
 Asn Ala Asp Ser Glu Ser Val His Val Glu Ile Gln Glu His Asp Asn
 245 250 255
 Ile Asn Pro Gln Asp Ala Cys Asp Ser Glu Pro Leu Glu Gln Met Asp
 260 265 270
 Ser Asp Thr Arg Val Leu Pro Glu Ser Leu Asp Glu Gly Val Pro His
 275 280 285
 Gln Phe Ser Arg Leu Gly His His Ser Asp Met Ala Ser Asp Ile Asn
 290 295 300

Asp Glu Glu Pro Ser Phe Lys Ile Gly Glu Asn Asp Ile Ile Gln Pro
 305 310 315 320
 Pro Trp Glu Asp Thr Ala Pro Tyr His Ser Ile Asp Asp Glu Glu Leu
 325 330 335
 Asp Asn Leu Met Arg Leu Thr Ala Gln Glu Thr Ser Asp Asp His Glu
 340 345 350
 Glu Gly Asn Gly Lys Leu Asn Thr Asn Lys Ser Glu Lys Thr Glu Arg
 355 360 365
 Lys Ser His Asp Thr Gln Thr Pro Gln Glu Ile Tyr Glu Glu Leu Asp
 370 375 380
 Asn Leu Leu Arg Leu Thr Ala Gln Glu Ile Tyr Glu Glu Arg Lys Glu
 385 390 395 400
 Gly His Gly Lys Pro Asn Thr Asn Lys Ser Glu Lys Ala Glu Arg Lys
 405 410 415
 Ser His Asp Thr Gln Thr Thr Gln Glu Ile Cys Glu Glu Cys Glu Glu
 420 425 430
 Gly His Asp Lys Ile Asn Lys Asn Lys Ser Gly Asn Ala Gly Ile Lys
 435 440 445
 Ser Tyr Asp Thr Gln Thr Thr Gln Glu Ile Cys Glu Glu Cys Glu Glu
 450 455 460
 Gly His Asp Lys Ile Asn Lys Asn Lys Ser Gly Asn Ala Gly Ile Lys
 465 470 475 480
 Ser Tyr Asp Thr Gln Thr Pro Gln Glu Thr Ser Asp Ala His Glu Glu
 485 490 495
 Gly His Asp Lys Ile Asn Thr Asn Lys Ser Glu Lys Ala Glu Arg Lys
 500 505 510
 Ser His Asp Thr Gln Thr Thr Gln Glu Ile Cys Glu Glu Cys Glu Glu
 515 520 525
 Gly His Asp Lys Ile Asn Lys Asn Lys Ser Gly Asn Ala Gly Ile Lys
 530 535 540
 Ser Tyr Asp Thr Gln Thr Pro Gln Glu Thr Ser Asp Ala His Glu Glu
 545 550 555 560
 Glu His Gly Asn Leu Asn Lys Asn Lys Ser Gly Lys Ala Gly Ile Lys
 565 570 575
 Ser His Asn Thr Gln Thr Pro Leu Lys Lys Lys Asp Phe Cys Lys Glu
 580 585 590

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<210> 87
<211> 1132
<212> PRT
<213> Babesia

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His Asn Ile Asn Leu Pro Pro Phe Ser Leu Gly Ile Ile His Ser Ile
          20                      25                      30

Thr Val Glu Lys Ala Ile Asn Ser Glu Asp Phe Asp Gly Ile Gln Thr
          35                      40                      45

Leu Leu Gln Val Ser Ile Ile Ala Ser Tyr Gly Pro Ser Gly Asp Tyr
          50                      55                      60

Ser Ser Phe Val Phe Thr Pro Val Val Thr Ala Asp Thr Asn Val Phe
          65                      70                      75                      80

Tyr Lys Leu Glu Thr Asp Phe Lys Leu Asp Val Asp Val Ile Thr Lys
          85                      90                      95

Thr Ser Leu Glu Leu Pro Thr Ser Val Pro Gly Phe His Tyr Thr Glu
          100                     105                     110

Thr Ile Tyr Gln Gly Thr Glu Leu Ser Lys Phe Ser Lys Pro Gln Cys

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115					120					125					
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145					150					155					160
Val	Asp	Gly	Thr	Asp	Leu	Val	Phe	Phe	Glu	Leu	Leu	Pro	Pro	Ser	Asp
				165					170					175	
Gly	Ile	Pro	Thr	Leu	Arg	Ser	Lys	Leu	Phe	Pro	Val	Leu	Lys	Ser	Ile
			180					185					190		
Pro	Met	Ile	Ser	Thr	Gly	Val	Asn	Glu	Leu	Leu	Leu	Glu	Val	Leu	Glu
		195					200					205			
Asn	Pro	Ser	Phe	Pro	Ser	Ala	Ile	Ser	Asn	Tyr	Thr	Gly	Leu	Thr	Gly
		210				215					220				
Arg	Leu	Asn	Lys	Leu	Leu	Thr	Val	Leu	Asp	Gly	Ile	Val	Asp	Ser	Ala
225					230					235					240
Ile	Ser	Val	Lys	Thr	Thr	Glu	Thr	Val	Pro	Asp	Asp	Ala	Glu	Thr	Ser
				245					250					255	
Ile	Ser	Ser	Leu	Lys	Ser	Leu	Ile	Lys	Ala	Ile	Arg	Asp	Asn	Ile	Thr
			260					265					270		
Thr	Thr	Arg	Asn	Glu	Val	Thr	Lys	Asp	Asp	Val	Tyr	Ala	Leu	Lys	Lys
		275					280					285			
Ala	Leu	Thr	Cys	Leu	Thr	Thr	His	Leu	Ile	Tyr	His	Ser	Lys	Val	Asp
		290				295					300				
Gly	Ile	Ser	Phe	Asp	Met	Leu	Gly	Thr	Gln	Lys	Asn	Lys	Ser	Ser	Pro
305					310					315					320
Leu	Gly	Lys	Ile	Gly	Thr	Ser	Met	Asp	Asp	Ile	Ile	Ala	Met	Phe	Ser
				325					330					335	
Asn	Pro	Asn	Met	Tyr	Leu	Val	Lys	Val	Ala	Tyr	Leu	Gln	Ala	Ile	Glu
			340					345					350		
His	Ile	Phe	Leu	Ile	Ser	Thr	Lys	Tyr	Asn	Asp	Ile	Phe	Asp	Tyr	Thr
		355					360					365			
Ile	Asp	Phe	Ser	Lys	Arg	Glu	Ala	Thr	Asp	Ser	Gly	Ser	Phe	Thr	Asp
	370					375					380				
Ile	Leu	Leu	Gly	Asn	Lys	Val	Lys	Glu	Ser	Leu	Ser	Phe	Ile	Glu	Gly
385					390					395					400
Leu	Ile	Ser	Asp	Ile	Lys	Ser	His	Ser	Leu	Lys	Ala	Gly	Val	Thr	Gly

405										410					415				
Gly	Ile	Ser	Ser	Ser	Ser	Leu	Phe	Asp	Glu	Ile	Phe	Asp	Glu	Leu	Asn				
			420					425					430						
Leu	Asp	Gln	Ala	Thr	Ile	Arg	Thr	Leu	Val	Ala	Pro	Leu	Asp	Trp	Pro				
		435					440					445							
Leu	Ile	Ser	Asp	Lys	Ser	Leu	His	Pro	Ser	Leu	Lys	Met	Val	Val	Val				
	450					455					460								
Leu	Pro	Gly	Phe	Phe	Ile	Val	Pro	Gly	Ser	Thr	Asp	Asp	Ile	Lys	Lys				
465					470					475					480				
Ala	Phe	Asp	Glu	Cys	Lys	Ser	Asn	Ala	Ile	Ile	Leu	Lys	Lys	Lys	Ile				
				485					490					495					
Leu	Asp	Asn	Asp	Glu	Asp	Tyr	Lys	Ile	Asn	Phe	Arg	Glu	Met	Val	Asn				
			500					505					510						
Glu	Val	Thr	Cys	Ala	Asn	Thr	Lys	Phe	Glu	Ala	Leu	Asn	Asp	Leu	Ile				
		515					520					525							
Ile	Ser	Asp	Cys	Glu	Lys	Lys	Gly	Ile	Lys	Ile	Asn	Arg	Asp	Val	Ile				
	530					535					540								
Ser	Ser	Tyr	Lys	Leu	Leu	Leu	Ser	Thr	Ile	Thr	Tyr	Ile	Val	Gly	Ala				
545					550					555					560				
Gly	Val	Glu	Ala	Val	Thr	Val	Ser	Val	Ser	Ala	Thr	Ser	Asn	Gly	Thr				
				565					570					575					
Glu	Ser	Gly	Gly	Ala	Gly	Ser	Gly	Thr	Gly	Thr	Ser	Val	Ser	Ala	Thr				
			580					585					590						
Ser	Thr	Leu	Thr	Gly	Asn	Gly	Gly	Thr	Glu	Ser	Gly	Gly	Thr	Ala	Gly				
		595				600						605							
Thr	Thr	Thr	Ser	Ser	Gly	Thr	Glu	Ala	Gly	Gly	Thr	Ser	Gly	Thr	Thr				
	610				615						620								
Thr	Ser	Ser	Gly	Ala	Ala	Ser	Gly	Lys	Ala	Gly	Thr	Gly	Thr	Ala	Gly				
625				630						635					640				
Thr	Thr	Thr	Ser	Ser	Glu	Gly	Ala	Gly	Ser	Asp	Lys	Ala	Gly	Thr	Gly				
				645				650						655					
Thr	Ser	Gly	Thr	Thr	Thr	Ser	Ser	Gly	Thr	Gly	Ala	Gly	Gly	Ala	Gly				
			660					665					670						
Ser	Gly	Gly	Pro	Ser	Gly	His	Ala	Ser	Asn	Ala	Lys	Ile	Pro	Gly	Ile				
		675				680						685							
Met	Thr	Leu	Thr	Leu	Phe	Ala	Leu	Leu	Thr	Phe	Ile	Val	Asn	Ile	Pro				

690					695					700					
Glu 705	Pro	Asn	Ala	Asp	Ser 710	Glu	Ser	Val	His	Val 715	Glu	Ile	Gln	Glu	His 720
Asp	Asn	Ile	Asn	Pro 725	Gln	Asp	Ala	Cys	Asp 730	Ser	Glu	Pro	Leu	Glu 735	Gln
Met	Asp	Ser	Asp 740	Thr	Arg	Val	Leu	Pro 745	Glu	Ser	Leu	Asp	Glu 750	Gly	Val
Pro	His	Gln 755	Phe	Ser	Arg	Leu	Gly 760	His	His	Ser	Asp	Met 765	Ala	Ser	Asp
Ile	Asn 770	Asp	Glu	Glu	Pro 775	Ser	Phe	Lys	Ile	Gly 780	Glu	Asn	Asp	Ile	Ile
Gln 785	Pro	Pro	Trp	Glu 790	Asp	Thr	Ala	Pro	Tyr	His 795	Ser	Ile	Asp	Asp	Glu 800
Glu	Leu	Asp	Asn 805	Leu	Met	Arg	Leu	Thr	Ala 810	Gln	Glu	Thr	Ser	Asp 815	Asp
His	Glu	Glu	Gly 820	Asn	Gly	Lys	Leu	Asn 825	Thr	Asn	Lys	Ser	Glu 830	Lys	Thr
Glu	Arg	Lys 835	Ser	His	Asp	Thr	Gln 840	Thr	Pro	Gln	Glu	Ile 845	Tyr	Glu	Glu
Leu	Asp 850	Asn	Leu	Leu	Arg	Leu 855	Thr	Ala	Gln	Glu	Ile 860	Tyr	Glu	Glu	Arg
Lys 865	Glu	Gly	His	Gly 870	Lys	Pro	Asn	Thr	Asn 875	Lys	Ser	Glu	Lys	Ala	Glu 880
Arg	Lys	Ser	His 885	Asp	Thr	Gln	Thr	Thr	Gln 890	Glu	Ile	Cys	Glu 895	Glu	Cys
Glu	Glu	Gly 900	His	Asp	Lys	Ile	Asn 905	Lys	Asn	Lys	Ser	Gly 910	Asn	Ala	Gly
Ile	Lys 915	Ser	Tyr	Asp	Thr	Gln	Thr 920	Thr	Gln	Glu	Ile	Cys 925	Glu	Glu	Cys
Glu 930	Glu	Gly	His	Asp	Lys	Ile 935	Asn	Lys	Asn	Lys	Ser 940	Gly	Asn	Ala	Gly
Ile 945	Lys	Ser	Tyr	Asp 950	Thr	Gln	Thr	Pro	Gln 955	Glu	Thr	Ser	Asp	Ala	His 960
Glu	Glu	Gly	His 965	Asp	Lys	Ile	Asn	Thr	Asn 970	Lys	Ser	Glu	Lys	Ala 975	Glu
Arg	Lys	Ser	His	Asp	Thr	Gln	Thr	Thr	Gln	Glu	Ile	Cys	Glu	Glu	Cys

980 985 990
 Glu Glu Gly His Asp Lys Ile Asn Lys Asn Lys Ser Gly Asn Ala Gly
 995 1000 1005
 Ile Lys Ser Tyr Asp Thr Gln Thr Pro Gln Glu Thr Ser Asp Ala His
 1010 1015 1020
 Glu Glu Glu His Gly Asn Leu Asn Lys Asn Lys Ser Gly Lys Ala Gly
 1025 1030 1035 1040
 Ile Lys Ser His Asn Thr Gln Thr Pro Leu Lys Lys Lys Asp Phe Cys
 1045 1050 1055
 Lys Glu Gly Cys His Gly Cys Asn Asn Lys Pro Glu Asp Asn Glu Arg
 1060 1065 1070
 Asp Pro Ser Ser Pro Asp Asp Asp Gly Gly Cys Glu Cys Gly Met Thr
 1075 1080 1085
 Asn His Phe Val Phe Asp Tyr Lys Thr Thr Leu Leu Leu Lys Ser Leu
 1090 1095 1100
 Lys Thr Glu Thr Ser Thr His Tyr Tyr Ile Ala Met Ala Ala Ile Phe
 1105 1110 1115 1120
 Thr Ile Ser Leu Phe Pro Cys Met Phe Lys Ala Phe
 1125 1130

<210> 88
 <211> 29
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR Primer

<400> 88
 ccgtcgcagc tgacttttgg aaatatacg

29

<210> 89
 <211> 36
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR Primer

<400> 89
 ctagaattca taggatccag gaactatgaa aaatcc

36

<210> 90
 <211> 27

<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 90
cgtggatcca ctgatgat taagaag

27

<210> 91
<211> 1148
<212> DNA
<213> Babesia microti

<400> 91
tgactggata tcgccaattg tattgtaaca ggtggttgct atggaaatat taccaagctg 60
cagcgcttta tcgccgagtc tcttccacct ttcaatat ttgggttcaa tttgcatttt 120
agacgcggat tttctgggag agtttacctc agatgaatta tttggtgatt tcaaggcacc 180
tttataaaat gtctcataag aatcaccatt caattgttcc agacactaaa tatttgtcaa 240
cttactaact caacatcacc ggtgctcaaa gcccaattcaa atttccttga tgcatttacc 300
gttatggcaa ctgctagctg tatattaccc atagcttcaa ctattacgct tatcctttcc 360
cgtaaatggg ttggtatttc agcaaccata tcaagtacta atccccaatt attctccaac 420
attgcagtct aaatgaattg attggattac attcaacttc aaataagttt cagttagggt 480
gtatgacaga acatttccat ctcgatcaat aagatatatc ttgcttggtt caatggaata 540
gcccgagaat gtacagkttc cgatctagat aagcgtgagg atcaggcacg ccagttgtgt 600
acaaataaga gtctcagacc aactgktgkg taaataaatg tatcaciaac ccatactcca 660
ctcacaatac sktctgtaat ctagggttaa caacaattta acctcagtat ccagctcaaa 720
tggttgatgg actccctcgt catcctgagg cgtattggca gcgactgata ccaaaaagga 780
attatgatca tattcttcta gttacgtttt ttctactgat ggaatcttta ccaaagttac 840
cccagctaca gggttttcaa ttggttggtg aatatttggc aatcaattaa ttccacagtc 900
catggatggt atcactagga ccgtttcata caccactaaa tatcctttga ttggtgttag 960
gattcaagat aagacttcga gttctacttc aaccggtttac tatgagcaat ctggtttaca 1020
atctagcaaa tttgttttga gggatgaccc agaattttatt attcctcaaa atcgaagtag 1080
tacttataca gtcaatgaca taacatataa atcatttgat atttctagtg ccgatgatac 1140
gaattttta 1148

<210> 92
<211> 605
<212> DNA
<213> Babesia microti

<220>
<221> misc_feature
<222> (1)...(605)
<223> n=A,T,C or G

<400> 92
tggccttgcc tcaacttaat gtgccaggga ggcattagca tttctgagga gtattcactc 60
ctcagtgtgt ggtggggttg ggggaggtag ggagaaagg agaaaggcag ggaggggaaa 120
ctctaggtgt tatgaaaagt gtatataaca ttaaaattga ggttgagaag taatgaggat 180
aaatgtaatt acccataaga acttcggtcc agcaactgaa aagtagtgga aacaactaaa 240
tgaacaaaat ctgagaaaag gagaccatgt ttaataggaa ttcattocta cagaactatg 300
aaacactggt acttggtaca taagacaaac tacagaaaag aggatacgaa tgtcagagcc 360

```

ttcttttttat tttttttctg agagatttga tcttgctcag agatgccaat tgagttctat 420
actccaataa ttgagcactt gtaccttgac ctttaatatc ctccggaaaa attatagata 480
tgagggagta taggtatgag aaaattgtct catttgatc ctgacctccm cttgtatcct 540
gatctccact tgttgntgac ccttcacttg tttgntgacc ttccttggt tggtgacctt 600
ccttg                                           605

```

<210> 93

<211> 631

<212> DNA

<213> Babesia microti

<400> 93

```

gttcctactt tgtcatcatt ggtcaagttg ttcagtgaag ttatgctgag agtgaaggat 60
gcgtcttcca cagaggctac catacgcatt ttcctccgtt tcaacgcatt tataaaattt 120
ttgaatgagg agaaatccag aggtgacaaa agtgcggtga atgatgagg attgatgagg 180
tttatatcga tgaccagtgg atttatcgat gaccttgaat tagttttaga tgagttatcc 240
aagcacagt tgcattataaa taacgaaggt gccaaagagca tgctatcctc tctcatacta 300
agcttcctgt atattaatca cataagaaat ttgatcaatg gtatttacct tggattgaat 360
aaccatcat cgtccattgg tgagacagca caagaaacaa ctgaaccctc cactcccact 420
cccactcca gcacacagac aatcctgaaa ccgaagggat ccgagataag gggctatata 480
ataaaagttg atcaaacagc taatctcacc acattcatag atgcattgat caaggagttg 540
aacgttcata ttaaacagac aacaacttgc tctgggkgtt ggcactaaag aaactaatgg 600
cactaccagt ggttctyctg aaagcaatcc c                                           631

```

<210> 94

<211> 632

<212> DNA

<213> Babesia microti

<220>

<221> misc_feature

<222> (1)...(632)

<223> n=A,T,C or G

<400> 94

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ataaataagt aaatacttac tgaaaacact tcaaaaacat gcaaaaacac agcataggac 60
ttaacaatta caaagtgaat ctgtacaatt ccactcttct aatgccattt acaagttgag 120
aatttaggaa atataaatca taagcagata gatcaaaaac agaatatctg gaataatgaa 180
acataaaaatg gaaatctaaa ctagaagtaa gttttataaa gccacaggca ggtactgaac 240
ctgagttcct ggttaccgac tgttagtctt ccottaatgg ggtagacttg gctggcccca 300
aagccactgg tatcatcatt ctgtctttgc atgtcctgtg caagggtcct aggtgtgctg 360
ctgtgtccag tttgctacaa gagtactgag gctgagccca tatccccatg gttatatggg 420
gaacaatttc cacatggagc attctcccca gttcatcttc cagaattcaa tattgatgta 480
tcagttctta attcattgat gtaagtcaat ctcccttaaa ttaaaaatta atagaaagca 540
atttctctaa cgggcaactt tctgcttgcg tgtaatatgt atgtgaaatc tagattctgc 600
ngaggagacc aaaccagtnt atttttgtgc ct                                           632

```

<210> 95

<211> 426

<212> DNA

<213> Babesia microti

<220>
 <221> misc_feature
 <222> (1)...(426)
 <223> n=A,T,C or G

<400> 95
 attttgtact gttcaaagt gtaatatatt tgtgaaagaa gaaaataatt taagtcaaga 60
 ggatgatgaa agggcagaag taatacttga gataagcact tcacatctta caattaaaac 120
 tcttctgtgt ctacctgcaa attcatgaca gatgaaatta acttgntttc tattcggttt 180
 ctctctttat ttctgccagt attataattt caggaaggaa catgcatcat aaattacatg 240
 taactttcat gttgcagtga tgctgggttc tttttttgat ctcatctgac agcagtaaag 300
 tcatacnaaa aataataaat acctctcatg gagcttgcca tttcctctgc atcttttttg 360
 gggaagaant ggcctgaaaa gtaaagcggt aagactcaca aagtcaaaaa ctttcagata 420
 gaaccc 426

<210> 96
 <211> 472
 <212> DNA
 <213> Babesia microti

<220>
 <221> misc_feature
 <222> (1)...(472)
 <223> n=A,T,C or G

<400> 96
 aggtnacaca tagaggagtg tgggtcaatta aacactcaag caccctatgt cttggtttgc 60
 tctctattgc tgtgataaac accagagcta agcccaactt gaagttgtca catggtctcc 120
 acacaaatac acacacacac acaccacaca cacacctatt gtatgcacat gcaccccccc 180
 ccccttncaa aaaaaaagga ncctctactc tttaccagca ataaaaaatg aactagggtga 240
 aaagaaaacc aaccttgctt catcatttag tcatagaaaa tgatactggg gttggcattt 300
 actatcatta acctaaaata aatgtgtccc tacctaaggg tataaactgt tatctggcct 360
 tgtacagatt ttggatcttg aattctttta gnggggttgc caatagcatt ttaaggnccc 420
 agaataaata gaccggatga aatgggatgg gctagagtag aatggaggct an 472

<210> 97
 <211> 867
 <212> DNA
 <213> Babesia microti

<220>
 <221> misc_feature
 <222> (1)...(867)
 <223> n=A,T,C or G

<400> 97
 ttaatatatt gttcacccgaa acatcctgta gtatacaact caaccaattc accattaaat 60
 gataatttga tcagtgtata ttgtgatgtt atattttatt gtattgttat ctcaccaacc 120
 ttaacttgc tgatgtaaat tttggaatct ggattattgg tgtacaacat gctcccatca 180
 cttaatgata tttttaaaaa ttcgttatca tcggcactag aaatatcaaa tgatttatat 240
 gttatgtcat tgactgtata agtactactt cgattttgag gaataataaa ttctgggtca 300

```

tccctcaaaa caaatttgct agattgnaaa ccagattgct catagtaaac ggggtgaagta 360
gaactcgaag tcttatcttg aatcctaaca acmatcaaag gatatttagt ggtgtatgaa 420
acggctcctag tgataacaty catggactgt ggaattaatt gattgccaaa tattacacaa 480
ccaattgaaa accctgtagc tggggtaact ttggtaaaga ttccatcagt agaaaaaacg 540
taactagaag aaagaccctc tggaacttga tcaacaaatc ctatttcggt tatgttaaga 600
ttcacaatat ttgtgacagc aacatcttgt gtggtctcca gagacggaga aattgttgat 660
gtggcagctg ttgttgatgt ggtagctgtt gttgatgtgg cagttgttgt tgatgtggca 720
gttgtgtgtg atgtggtagc tgtgttgtat gtagcagatg ttgttgatgt agcagtacat 780
actgacagta catgtgcatg tgtgtgtaaa taggattctt gtaaagccaa gtatatcctc 840
actgctgatt tgtctgatat tacctcc                                     867

```

<210> 98

<211> 815

<212> DNA

<213> Babesia microti

<400> 98

```

tagtcattag attatcatga caccaataag ctttttatct tgaagttggt ttatatatta 60
atacaaccat agcatcataa aaagctacatt tgtttttttt atcttaaccc atggtcattc 120
agtctttttc ctttattatt catcattgat tgtccttaaa tgctcaaagc atctgcccct 180
ttaaactact tctttctaaa tttagcatata ctctatatgg tcataacctat tctgtgtaat 240
catcagggttc cctgtgcagg ggaaaggagg aacgctcaag cactgaggaa tcatcccgtc 300
gtgtgataac gttgatggaa gacaagtgat acagttagtt gttcaaacia ataagcatat 360
tttaagggga agaatagtgt cgtactaact aaaatctaatt ttgaccataa tacgcacatt 420
agtgtgtttg tgcctcaattt ttttaatgaa tcaggccccc gatttatatt tgtgaaagtc 480
catgtgggag cgtaaggatg ggatagttaa ttacagtag cttctctggg gaaaggaaaag 540
caaagcccca actgtataga gttcattgga gctgtcacct acgcccctgc cttcctgtcc 600
ctttagagtg cctcagtttg ctgtgtggca agagtctctc cctgctcctg ctctcctagc 660
cccctctgcc tgccctcccc agttgatgcg agagtcact gttggagaag ttaactctaa 720
tcttacacct ggggagagct actggaaatt aattttccat gtaactggct ttgagttcta 780
gcaggcttta gattttagaa gtttttgtgt gtgtgt                                     815

```

<210> 99

<211> 1225

<212> DNA

<213> Babesia microti

<220>

<221> misc_feature

<222> (1)...(1225)

<223> n=A,T,C or G

<400> 99

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attgtgtaaa gggttaccat ggccatggca atttttgtaa aagaaagcat ttaaattggg 60
gcttgtttac agtttaagag ggttgactca tgaccatcat tgtgggaagc atggtagcag 120
gttggcatgg tgctggatca gtaattgaga gctttacact ctgatacctaa ggcacacac 180
aaagaaaagc ctggtccttg tgtgggcttg aagcctcaaa atccccctct aatgacacac 240
ttccctcaag tacatactta ttccctaaatc cttctcaaac agtttcaaaa cttgtgcctg 300
agtgttcaaa tatatgaacc tacaggggcc attcacattc aaattatcac aggcagataa 360
gttactagtc atggaagtcc aaatatatac tttgttatga aaatataaat atgctttaga 420
atctggggaa cccagaaggg tggagatggg gtcaagattc tctgagatgg ggtcaagatt 480
ctctgtgtct cccctgggctt ggctggaatg tccctcctgt cttccaagtc ctctgttcca 540

```

```

ggtgaccatg tccccatccc agtccccctcg atggtcctca tgccctcctc tcagttcctg 600
gctgctcccc ccccccgcc acatcccccac caagggactg gccggctctc atactgctac 660
ccatgcaggg tgctcatgcc cttgcgcccc ggcaccttta gtgtttcngt cccttcccgg 720
ccccactcag cgccacccca tgtcgcaggg ccgccgtccg cgccacggga ccttgcaagt 780
acaagcttga gccgcttccc ccctggcggt gcgactgcgg tggctgcgcg cttgcgggam 840
tccggcggtc gttccgacgt cacctactcg stgcttgctc ctgctctgcg ggccgcgacg 900
gtccggcggg cgcatgccaa ccctgcgggc cacgcgtggc cttcgtcccg cgtcaggcag 960
ggttgcgaga acgcgcgcgc acggttgctg cacctgcggc cgggcgcgcg ctataccgtg 1020
cgcggtggcg cgtcacaagg tgtctcaggc ccagcggccg ccgcggaagc cacctacgcg 1080
caggtcaccg tgtccaccgg acccgagggt gaggccacgc gcccagcgg agtccgtccc 1140
cctccccaac cgcagttccc tctatgcatt ccaagtcatt caggaacca cgtgactaca 1200
ccccatgccc caggtgcggc acgag                                     1225

```

```

<210> 100
<211> 537
<212> DNA
<213> Babesia microti

```

```

<220>
<221> misc_feature
<222> (1)...(537)
<223> n=A,T,C or G

```

```

<400> 100
aaagaaagag aagaagggag agaagagcaa ggggaatgaa tgagagagga gagaagggaa 60
tagaagagag gggagggcag aggaggggaa gcagagggga ggggaaagga aggagaaaga 120
gaacagagac agaggggaag tcaggtagat cactgtccaa gagatcacat attatccaag 180
cmacggacag agcttttaga agtgtagaga gaggcacctt tccccagtg tcctataatg 240
accatttctg caaattctct agaacttagt tccattctgc acaaccctc catacctgtc 300
atcatgtgct tcacttacta gcctcaagta agctgttaag tgttccagtg ttatatgcca 360
ttctagtacc ttcatccagt gactgataga agcagagcta aacnccnca gttaaacaat 420
aaactgaatc cctagaacct mgtgaccgag agtgktctca taattcttaa aaagatgcta 480
ttaaatttta tcctgtatca tactacatta tctttttttc ttcttcccc tcccccc 537

```

```

<210> 101
<211> 543
<212> DNA
<213> Babesia microti

```

```

<220>
<221> misc_feature
<222> (1)...(543)
<223> n=A,T,C or G

```

```

<400> 101
acataacact agggacttgg cattgcatat ctgtaaatat aattgaaacc aaaataaaat 60
attggtgagt tccataggtt gggttgttca cagtgcatt taaaagtga attcttgaga 120
gotggttttg aggttctatt aggggagtg ggtacttgta taccttggac tgaagaccag 180
tcctcctcta ttccgggaag gycgycctc tcgaccaagc atgcacttca ggatggacac 240
acatggagtg ttgagggagg aaagagatcc ccctaagcca gatagatcaa ctaaataaac 300
cttgaaata aatgggggtga cagatgtarc avcgagaatg ccctcacata ctgaaaatga 360

```

```

aataattamc cmccwttagt ttttccatyt gataacctagg cmctytctaa ttttaattcca 420
mcattctkga aaagtgksth ttgaaagatt ggtgggcaac cccccaatt antcccctnc 480
caatggggta aggccaaaaa accagggggg aaattccaaa aattattgnt ttgtaaaggg 540
gaa 543

```

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<210> 102
<211> 811
<212> DNA
<213> Babesia microti

```

```

<220>
<221> misc_feature
<222> (1)...(811)
<223> n=A,T,C or G

```

```

<400> 102
tggataagga tgaagtcagt tagaccaata ctaattcatt ttattacatt ctttttaaca 60
agtggaaatg tctttgcagg aaatgggtgat gttaatcaat attcaagtga ttttggacga 120
gcattaaacg atcttatgat cgcttttaac gaggctaaaa aaatgtatgc aaaattttct 180
gaacagatca cggacactat gattcatacc tgcaaaaata gtattgatat actagaagca 240
gatgagaaga atggtggtca taaaaattac cttgaaaaga aagaaattga gctcaaaagt 300
aaaattgtgg aatttaacgc ctttttttca aacattgatt taaataatan gtacggktaa 360
aaatgaaata attaaactgc ttaatgatat atccactatc tctaccgata ttaagtcaat 420
tggtgatgaa atatactata aggctcttgg tacaattgaa ggtgaaaatg ctgaaaattt 480
tgagtatgaa attaagaaaa agaaagctga actacttaga aacctgctga atgataatat 540
taaaccaatt atggggatat ttaactgaga tatcaatatg ccatccaatt atatcaata 600
aagcgaattt atgatatcaa gaaagcattt gaaaagcacg aattagaagc taatgttttg 660
atatcccaga tattagaaaa tatcagaatt ttggcactaa ttttaatgac attttaaatg 720
aagtgaatgg ngcaattgaa gaatttaata aaactattgg acgtcatgaa taacaccatt 780
ggggaccctt ggtattggtg ttgacagcgg g 811

```

```

<210> 103
<211> 2966
<212> DNA
<213> Babesia microti

```

```

<400> 103
ctcgtgccga atgtcattta tgatctaata atattgtatt atctctaata ttatgggtata 60
atagatactg tgaaaataaa ttcaactgga gataaggaaa ccatttgtat agatatttta 120
tacaaattat tatgaaataa tctaaataaa tgacaaaaaa tcgattatac aaatcacatt 180
aatgacaaac aaacttgtat acatatattg attaacatta caaaactaaa ttataatatt 240
tagattgata attgttataa tacttaacaa tattctactt tttaatataa tttttttatc 300
aataatatac tctttcatat tttgtactat tttatataat catatatatt atataattat 360
atatatttga taattgaata tatcaataat gatgatatac atgaatatgc atatataccc 420
catataatgt tatttatatt agtgcttaca ttattaatta taaatatatt taaataatta 480
aataataatg aaaattaaca tagacaatat aatattaatc aatttgataa tattattgaa 540
tcgtaatgta gtatattgtg tggataaaaa tgatgtttca ttatggaaat caaaacctat 600
aacaactgtc agtaccacta atgatactat tacaaataaa tacactagta ctgtaattaa 660
tgccaatttt gctagctacc gtgaatttga ggatagggaa cctttaacaa taggatttga 720
atacatgatc gataaatcac aacaagataa attatcacat ccaaataaaa ttgataaaaat 780
caaaattttc gatttatata ttgaatttga tgacaatgct aaattaccaa ctggtagtgt 840
taatgatata tccatcatta cttgcaagca taataatcca gtattaatta gattctcatg 900

```

```

tttaatagaa ggatctatct gctattatct ctacttattg aataatgata caaataaatg 960
gaataatcac aaattaaaaat atgataaaac atacaatgaa catactgaca ataatgggtat 1020
taattattat aaaatcgatt atagtgaatc tacagaacct actaccgaat ctactacctg 1080
tttttgTTTT cgcaaaaaaa atcataaatc tgagcgtaaa gaattagaaa attataaata 1140
tgaggggtaca gaattagcaa gaatacattg taataaaggg aaatgtgtaa aattgggtga 1200
cattaagata aaggataaga atttggaat ttatgtgaaa cagttaatgt ctgtaaatac 1260
tccagtaaat ttgacaacc ctacatcgat taatctacca ctgtcagtac taccaatgat 1320
actattacaa ataaatacac tggactataa ttaatgccaa tattgttgag tactgtgatt 1380
gaggatgacc ttacaatagg ttagatcctt agataaatca caacaaaata aattatcaca 1440
tccaaataaa attgataaaa tcaaawttty tgattatata attgaatttg cagcagatgt 1500
taaattaaca acaattggta ctgtcaatat tatatatatc tatacttgca agcataataa 1560
tccagtatta gttgaattta tagtttctat agaagratct tactacaatt acttctactc 1620
aatgaataat gatacaata aatggaataa tcataaaata aaatatgata caagatttaa 1680
tgaacatact gacatgaatg gtattaatta ttatgaatat gtacttggtg aatgcagttc 1740
ttatacttgt aaaaatgaat atgagcataa agaattagca agaatacatt gtaatgaaga 1800
aaaatgtgta aatgtaaagg tagataacat tgggaataaa aatttggaag tttatctaaa 1860
ataatttaac gaagtgtaat atgtaaaata gtttaatgaa gtataatatt atttaaaata 1920
attcaaaaatt tcagaaatta atataattaa ttattataaa taaaaataa ttaattacaa 1980
aataacgtat tattagccat ttcagattgt aaatacatat tttacatat atttttatta 2040
aaactttcaa attaatgttt tcatttttat aagcattatt ataattatat actataatta 2100
tcagtcacat aataatatcc aaagtttatcc tctacattat atcaatcata cagtatacaa 2160
ttatataaaa tattaacaac atataacaac caacattaat atatacataa tatctttatt 2220
aatcaatatt taatcaatac aataattaat agttaactaa ctatacacat agtgataact 2280
aaattattat aaattatatg ttataattac aaaaacgtca tttacttatt ttatttcagt 2340
tatgtttcat agtctaattt agatttggtg aaacgcactt ggctgatgtg ctggtgagca 2400
agcagttcca cgaagcaaac aatatgaact atgcgctggc ggcgctttct gcggcggttg 2460
ccgcacagct gccttgccgt gacgcgctga tgcaggagta cgacgacaag tggcatcaga 2520
acggctctggt gatggataaa tggtttatcc tgcaagccac cagcccggtg gcgaatgtgc 2580
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gcagcgggta cctgttcctg gtggaaatgc ttaccgacct caacagccgt aaccgcagg 2760
tggtttcacg tctgattgaa ccgctgattc gcctgaaacg ttacgatgcc aaacgtcagg 2820
agaaaatgcg cgcggcgctg gaacagttga aagggtgga aaatctctct ggcgatctgt 2880
acgagaagat aactaaagca ctggcttgat aaataaccga atggcgggca tagcgccgcc 2940
attcggggaa tttaccctgt ttttct 2966

```

<210> 104

<211> 1137

<212> DNA

<213> Babesia microti

<400> 104

```

gtttttttcc cctgaggttt tgattgttaa tttaatgtca aattaattgg attaagaaat 60
gccagcagag catggtggtg aacacctcta attcccaggc aggtgaatct ttgagttcaa 120
ggccaacctc atgtacaaac ctagtcccca gtatasccat gmytaamcag ggaaaccgkg 180
totkgggaaa aamcaaaawt aaamcagaag agaaaggggg aaatgcctgg ggattagtga 240
gggttaatgcc agtgggtggtt tttattacca gagacaataa gaccgtgaga gctctgggaa 300
ttttgtttgt ttgttttttg cttttccaag acaggggtttc ttggtagctt tggagcctgt 360
cctggaactc aggctataga tcaggctggc ctcgaaactca cagacatcca cctgcctctg 420
cctcccaaat gctgggatta aagggtgtgt ctaccaccac ccgggctaga aagaacttgt 480
tagttgggat gtaaatctct ggtcatccct caaaacaaat ttgctagatt gtaaacaga 540
ttgctcatag taaacggttg aagtagaact cgaagtctta tcttgaatcc taacaacaat 600
caaagatat ttagtggtgt atgaaacggt cctagtgata acatccatgg actgtggaat 660

```



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taattgattg ccaaataatta cacaaccaat tgaaaaccct gtagctgggg taactttggg 720
aaagattcca tcagtagaaa aaaccgtaac tagaagaaa accctctgga acttgatcaa 780
caaatcctat ttcgtttatg ttaagattca caatatttgt gacagcaaca tcttggtggg 840
tctccagaga cggagaaaatt gttgatgtgg cagctgttgt tgatgtggta gctggtgttg 900
atgtggcagt tgttggtgat gtggcagttg ttgttgatgt ggtagctgtt gttgatgtag 960
cagatgttgt tgatgtagca gatgtgtgtg atgtagcagc tgttggtgat gtagcagctg 1020
ttgttgattg agcggcggtt gctgctgaag taggtattga atttgctata ctcacacttg 1080
tggcatcggg acctgcgcct cctctagtgt ttgttgccaa agtcagagtg agcctgt 1137

```

<210> 105

<211> 1010

<212> DNA

<213> Babesia microti

<400> 105

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aatcgccaga atattccagg cagggttttag taaccctatc catcaatggc gtgttagggg 120
aaaccgaagg tatattattt gagttttcat ccttagatat acagttttct aaggcataag 180
gggttttccc gccagtgett gtagtattgg ttattgacag tagtttttta gttccacttt 240
cattagtgat agctgcggag gcttttgcga tagagctggc tagtatagat gaagattttg 300
agtctttggt tagggggaag tgaatgggtgc aattgaagaa tttaataaaa ctattgacgt 360
catgaataac accattgggg accttggtat tgttattgac agcggtatta tttcaagcat 420
aaaatcatat atttccacaa tcgccaagat ttctaaagca ataatccctg gacaaatggc 480
attagttttt actgcattaa tattaattct aaattaaatg aaattcagat gtatatatta 540
ttatatagta caaaattttac acatttatta tatacatgaa cgaacatctt gctcttaaat 600
aaagaaattg agatataaat ggaaataaat taaaagtaac atgagaaaga tgaatataat 660
attaataat taaatttaac tgaaataaaa tgaaataaaa gaatgtattt tataataatt 720
tataataaat tagtatacaa tgattctaca ttataacaag cgagaataaa taattattga 780
ttagtcataa tattatgtat atgttaaggt ttattgttat gtgttgctaa tatgttatat 840
aattgtatac catagtgatt gatataatgt agaggataac tttggatatt atttgatgac 900
tgataattat agtatataat tataataatg kttataaaaa tgacattaat ttgaaagttt 960
aaattaaaa atatgtaaaa atatgtattt aaatctgaaa tggctaataa 1010

```

<210> 106

<211> 1162

<212> DNA

<213> Babesia microti

<400> 106

```

atgtgaatgc attgatcaag gagttgaacg ctcatattaa acagagagca acatctacaa 60
caacaattat tattgaaact aatgctaaa atgtggatga gttagtga aaatttgcaa 120
caattgcata ttttgatgat aagttcaaga acgtattctt tgataattct gttattgatg 180
aaattgtcaa aacgttggaa aagatgaagg ttgagtcaga tactgtatta cctagttgca 240
atggaatcca gaccactgaa aactctagta ctgaccata tacagtatta tcaaaactta 300
taaagaaaat taacgactcc ataatcagac ctatgacttc tcggctgata aacaaatcct 360
ttcgggagtt gtgcaagttg ttataaaaa tgccgatgt cgactocaca aatttatggc 420
tttgatgtg gacataagcc amcactcttg taamcagrag agtcagatat tctgatggca 480
gatttaccat tgtaagcact gggccaatt ttagatacac attggcmcca actgccgctt 540
ggtcattgatt tgtctctctt ctccaattg ccaatctcaa tgattacggc acatgcgctc 600
aggagcaggc acttacatct tgcgtcagtc atggtaacga attcagcata gtaagcactg 660
caggcaagac aacttacact acacaatcta agttgttgtc acttttcaag ttatctgcgg 720
agacgttaag ggattttaat gaagctagat ttgcacttgg taacatgact gatagtgcta 780
ataaatctaa agctttggag gtctacaaa cgacactaac ttactatgaa atcaatatca 840

```

```

gtcgaattgg aaaagatttt tggcatatta aaatcaactc cgaatattac ttttgaatca 900
gttgttttcta aatacaaaatt gactgggtgtt aatacagttg atactgccaa tgctgatgtg 960
atcaacgaga caatgtttga cgatttgtcc aaggcaattt cctcatacct atactccctc 1020
atatctataa tttttccgga ggatattaaa ggtcaaggta caagtgaagg tcaacaaaca 1080
agtggaggtc aggatacaaa tgagacaatt ttctcatacc tatactccct catatctata 1140
atttttccgg aggatattaa ag                                     1162

```

<210> 107

<211> 984

<212> DNA

<213> Babesia microti

<400> 107

```

tgggtgagct agctgttgct cagccttggt gtgattggac agtgtagagc tcatctgaag 60
tcttggcttg atagttaggc tggaccatct cagctagcag ctttgaagct gttctggatg 120
cagaattttg agggaaactgc aacagaggct ttctgagagg ctggatcaat tgggctactc 180
atctgtattg gtttctggtc ctttttttct gaaagcacia acttttaaag gtaccatatg 240
tatctgcatt agcacaaatg aatgtgcagt gtgcacaggc caactaaagg ttttttcttc 300
tgtgtatgag caggtaaaag gcacctgtca actttataag tccaaacctt cgaaaatgat 360
ggcactatga catcaaaatt ttattccagg gagtccctag acccaacaac ctacatcgga 420
catgcaccta cagacatatt tacgtcgcca tggatcacga cccacatgca taacaagcgt 480
cttgttgact ttgaagttcc atttgaagca atttttgatg ataaactcat aagttattat 540
accggtacgg atgtcaacgg caagaataag gttcctgcag agcttaccac ggcaatatgc 600
ggcaaaagaag acgtgtgtga gcttaacatt accggtttat tgttgaaaga tattagtgtc 660
aagaaattgg aggagtgtag gaagaagaat gcactctagt gtactccatc tgggtgtaca 720
ccttctaattg ttccagagga gtgtgtgatt aaaagcaact tacagacggc tatgaagaag 780
gatgttacta caactttgaa atcggatgat gtcagcaatt acagtgttgt atccattcac 840
ttttacattg ataacgtgtt cagacataat actgcttttg gcagaattaa gattggcaac 900
cttgatctac cagcattttc cattgggttt atccactcga tcttcgtcga gaggggttctc 960
atgggtgaca agagccttgc cagt                                     984

```

<210> 108

<211> 537

<212> DNA

<213> Babesia microti

<400> 108

```

ttatggaggg ctatttagat ctcgatttga attccaagat tggtaacttt atttcagcca 60
tcgaactcac taacctgacc aacacggtaa aatcagcgag cgtccaccct cccaactaa 120
aagtgttggc tctgaagttt ggcaacaaga tctgtgatgt cgaggagaca ggcaggacat 180
ttgttacatt tgatgagaag ttgaattcaa tagaaataat taccttcgaa aatgatggca 240
ctatgacatc aaaattttat tccaggaggc ccctagactc aacaacctac attggacatg 300
cctctacgta cacacttccc gaagtgccta ccaggtcatt atgttgtaaa gaggacttat 360
gtacgcttga cattacggat ctattgttga aagagattag tgctaagaaa ttggaggagt 420
gtaggaagaa gaatgcattc agtggacttc catctgggtg tacaccttct aatgttccag 480
aggagtgtgt aattagaacc aacttacaga tggttatgaa gaagaatgct cgtgccg 537

```

<210> 109

<211> 2559

<212> DNA

<213> Babesia microti

<220>
 <221> misc_feature
 <222> (1)...(2559)
 <223> n=A,T,C or G

```

<400> 109
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ttatttagcca tttcagattt aaatacatat ttttacatat attttaattt aaactttcaa 120
attaatgtca tttttataaa cattattata attatatact ataattatca gtcacaaat 180
aatatccaaa gttatcctct acattatata aatcactatg gtatacaatt atataacata 240
ttagcaacac ataacaatca accttaacat atacataata ttatgactaa tcaataatta 300
tttattctcg ctgtttataa tgtagaatca ttgtatacta atttattata aattattaca 360
aaatacactc ttttatttca ttttatttca gttaaattta atattttaat attatattca 420
tctttctcat gttactttta tttattttcca tttatatctc aatttcttta ttttaagagca 480
agatgttcgt tcatgtatat aataaatgtg naaattttgn actatataat aatatatata 540
tctgaatttc atttaattta gaattaatat taatgcagta aaaactagtg ccatttgtcc 600
agggattatt gaattagaaa tottggcgat tgtggaaata tatgatttta tgcttgaaat 660
aataccgctg tcaataacaa taccaaggct cccaatgggt ttattcatga cgtcaaatagt 720
tttattaaat tottcaattg caccattcac ttcattttaa atgtcattaa aattagtgcc 780
aaaattctga ttattttcta atatcttggga tatcaaaaca ttagcttcta attcgtgctt 840
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aagtagtcca gctttctttt tottaatttc atactcaaaa ttttcagcat tttcaccttc 1020
aattgtacca agagccttat agtatatttc atcaacaatt gacttaatat cggtagagat 1080
agtggatata tcattaagca gtttaattat ttcattttta accgtactat tatttaaatc 1140
aatgtttgaa aaaatggcgt taaattccac aattttactt ttgagctcaa tttctttctt 1200
ttcaaggtaa tttttatgac caccattctt ctcatctgct tctagtatat caatactatt 1260
tttgccaggta tgaatcatag tgtccgtgat ctgttcagaa aattttgcat acattttttt 1320
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gtttattata gttataataa cgttgtaata atgaaatact tgaattaatc ttcagataat 1560
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tgtttatggt ttatcgctta attttattgt atattgtata aaaattgctc tataataata 1740
ataatataac agtaagattt gataatgata aatattgtat gataacataa ataatactaa 1800
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atataacata gatataattag tatattttat atttattact tatcgttgta taataacta 1920
gtcatttgac tttactttta ttatggcata tcatttgtgt ttatccttat tcctaataca 1980
atgttaatat aaacgtatct ccagtttata atgattgcaa gtatagatgc ttattaatat 2040
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tatgattccc ttaataatcc attgtttcat cacacaatat agatccatat gttaaataac 2160
aatttgatta ttataaattt agatataaat aactttattt ttataataat taatttatatt 2220
aatttcttaa atttcgaatt atttttaata atattatact tcattaaatt attttacata 2280
aatttccaaa ttcttatcct taatactata cacttttact catttttgct cactacattt 2340
ttgtttacca tattctgtat tataaggggg aaaggcacca tcacaaaagg tttcataata 2400
ttcaatacga ttatcgtcaa ctgtgatgact aatactggta cattctaatt tttcattttt 2460
ccattcatta ttatccttca atttgtagaa ataatagcgg gttgattttc ctatagtagc 2520
agaaaattgt attaatattg gttttttatg agaatacact 2559

```

<210> 110

<211> 3141
 <212> DNA
 <213> Babesia microti

<220>
 <221> misc_feature
 <222> (1)...(3141)
 <223> n=A,T,C or G

<400> 110
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 gcataattca ctcgattacg gtagaaaagg cgattaactc tgaagatttt gacggaatac 120
 aaacactttt acaagtgtct atcattgcta gttacgggcc atctggcgat tacagtagtt 180
 ttgtgttcac tccagttgta acagcagaca ccaacgtttt ttacaaatta gagacggatt 240
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 gctttcacta caccgaaact atttaccacg gcacagaatt gtcaaaattt agcaagcctc 360
 agtgcaaaact taacgatcct cctattacaa caggatcggg gttgcaaata atacatgatg 420
 gtttgaataa ttcgacaatt ataaccaaca aagaagttaa tgtggatgga acagatttag 480
 ttttttttga attgtccct ccatcggatg gcattcccac cttgcgatca aaattatttc 540
 ccgtcctgaa atcaattcca atgatatcta ccgggggttaa tgaattactg ttggaagtac 600
 tcgagaaccc ctctttccct agtgcaatta gcaattacac cggactgaca ggccgactta 660
 acaaattact tacagtttta gacggatttg ttgatagcgc cattagtgtc aagactacag 720
 aaactgtccc tgacgacgca gaaacttcta tttcttcatt gaaatcattg ataaaggcaa 780
 tacgagataa tattactacc actcgaaacg aagttaccaa agatgatgtt tatgcattga 840
 agaaggccct cacttgtcta acgacacacc taatatatca ttcaagagta gatggtatat 900
 cattcgacat gctgggaaca caaaaaata aatctagccc actaggcaag atcggaacgt 960
 ctatggacga tattatagcc atgttttcga atcccaatat gtatcttggt aagggtggcg 1020
 acttgcaagc cattgaacac atttttctca tatcaaccaa atacaatgat atatttgatt 1080
 acaccattga ttttagtaag cgtgaagcta ctgattctgg atcatttacc gatatttgc 1140
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 ctcaactcatt gaaagctggg gttacaggag gtatatcaag ttcatcatta tttgatgaaa 1260
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 cttctacccc caataccaat gtgaacatca aaacaattat cagcaagatt aagaaaattt 1440
 tgatgataag tgagactatt tcatccacag ctcttgcaag tttatctgca gtattaagca 1500
 ttcttggtag ggggacttcc acaaatgtca ttccggaacg tctaactagt atcgttggtg 1560
 atttgaaatc ggcaactgtt ccacaggaag tggcgcttaa gaatggagtt tacaagttga 1620
 aggaccaatt taagctaacg cacaagatga tacctgtttt tggcagcgtg caactgcaga 1680
 ttccagagaa atcaacagtc gtgcagataa gtgtagtaga gcatgaaaat gatacaaaaa 1740
 tggcaatcat cacccttgat gatcattcga aattgacttt ggaaagggtg attctttcag 1800
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 caatatttgt caagatggat aatacaacgg atgatggggg tatggagggc tatttagatc 1920
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 cccggtaaat tcagcgagcg tccacntcc ccaactaaaa gtgttggtc tgaagtttgg 2040
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<210> 111
<211> 1134
<212> DNA
<213> Babesia microti

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<210> 112
<211> 3011
<212> DNA
<213> Babesia microti

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<210> 113

<211> 1161

<212> DNA

<213> Babesia microti

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<210> 114

<211> 984

<212> DNA

<213> Babesia microti

<400> 114

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<210> 115

<211> 1205

<212> DNA

<213> Babesia microti

<400> 115

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<210> 116

<211> 1919

<212> DNA

<213> Babesia microti

<400> 116

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<210> 117

<211> 4722

<212> DNA

<213> Babesia microti

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<212> DNA

<213> Babesia microti

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<212> DNA

<213> Babesia microti

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<211> 1312

<212> PRT

<213> Babesia microti

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Ile Thr Thr His Met His Asn Lys Arg Leu Val Asp Phe Glu Val Pro
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 Phe Glu Ala Ile Phe Asp Asp Lys Leu Ile Ser Tyr Tyr Thr Gly Thr
 1025 1030 1035 1040
 Asp Val Asn Gly Lys Asn Lys Val Pro Ala Glu Leu Thr Lys Ala Ile
 1045 1050 1055
 Cys Gly Lys Glu Asp Val Cys Glu Leu Asn Ile Thr Gly Leu Leu Leu
 1060 1065 1070
 Lys Asp Ile Ser Ala Lys Lys Leu Glu Glu Cys Arg Lys Lys Asn Ala
 1075 1080 1085
 Ser Ser Gly Thr Pro Ser Gly Gly Thr Pro Ser Asn Val Pro Glu Glu
 1090 1095 1100
 Cys Val Ile Lys Ser Asn Leu Gln Thr Val Met Lys Lys Asp Val Thr
 1105 1110 1115 1120
 Thr Thr Leu Lys Ser Asp Asp Val Ser Asn Tyr Ser Val Val Ser Ile
 1125 1130 1135
 His Phe Tyr Ile Asp Asn Val Phe Arg His Asn Thr Ala Phe Gly Arg
 1140 1145 1150
 Ile Lys Ile Gly Asn Leu Asp Leu Pro Ala Phe Ser Ile Gly Phe Ile
 1155 1160 1165
 His Ser Ile Phe Val Glu Arg Val Leu Met Gly Asp Lys Ser Leu Ala
 1170 1175 1180
 Ser Val Gly Ile Ile Thr Asn Tyr Gly Pro Ser Gly Asp Tyr Glu Leu
 1185 1190 1195 1200
 Leu Arg Tyr Met Gln Val Glu Glu Gly Lys Asn Tyr Phe Lys Leu Val
 1205 1210 1215
 Gln Gly Pro Glu Ile Thr Ala Asp Tyr Ile Gly Ser Gly Leu Thr Lys
 1220 1225 1230
 His Lys Arg Leu Thr Met Asn Gly Ala Ser Thr Gly Ser Ile Gly Phe
 1235 1240 1245
 Glu Thr Asn Tyr Lys Glu Ser Ile Leu Phe Asn Glu Phe Met Arg Pro
 1250 1255 1260
 Thr Asn Lys Ile Val Thr Leu Phe Tyr Thr Asp Ser Glu Thr Val Asn
 1265 1270 1275 1280
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Ser Ile Tyr Gly Ala Phe Pro Ile Glu Glu Ser Ser Pro Glu Ser Ser
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Val Asn Gln Tyr Ser Ser Asp Phe Gly Arg Ala Leu Asn Asp Leu Met
 35 40 45

Ile Ala Phe Asn Glu Ala Lys Lys Met Tyr Ala Lys Phe Ser Glu Gln
 50 55 60

Ile Thr Asp Thr Met Ile His Thr Cys Lys Asn Ser Ile Asp Ile Leu
 65 70 75 80

Glu Ala Asp Glu Lys Asn Gly Gly His Lys Asn Tyr Leu Glu Lys Lys
 85 90 95

Glu Ile Glu Leu Lys Ser Lys Ile Val Glu Phe Asn Ala Ile Phe Ser
 100 105 110

Asn Ile Asp Leu Asn Asn Ser Thr Val Lys Asn Glu Ile Ile Lys Leu
 115 120 125

Leu Asn Asp Ile Ser Thr Ile Ser Thr Asp Ile Lys Ser Ile Val Asp
 130 135 140

Glu Ile Tyr Tyr Lys Ala Leu Gly Thr Ile Glu Gly Glu Asn Ala Glu
 145 150 155 160

Asn Phe Glu Tyr Glu Ile Lys Lys Lys Lys Ala Glu Leu Leu Arg Asn
 165 170 175

Leu Leu Asn Asp Asn Ile Lys Pro Ile Met Gly Tyr Leu Thr Glu Ile
 180 185 190

Tyr Asn Met His Ile Pro Ile Ile Ser Asn Lys Ser Glu Phe Asn Asp
 195 200 205

Ile Lys Lys Ala Phe Glu Lys His Glu Leu Glu Ala Asn Val Leu Ile
 210 215 220

Ser Lys Ile Leu Glu Asn Asn Gln Asn Phe Gly Thr Asn Phe Asn Asp
225 230 235 240

Ile Leu Asn Glu Val Asn Gly Ala Ile Glu Glu Phe Asn Lys Thr Ile
245 250 255

Asp Val Met Asn Asn Thr Ile Gly Asp Leu Gly Ile Val Ile Asp Ser
260 265 270

Gly Ile Ile Ser Ser Ile Lys Ser Tyr Ile Ser Thr Ile Ala Lys Ile
275 280 285

Ser Asn Ser Ile Ile Pro Gly Gln Met Ala Leu Val Phe Thr Ala Leu
290 295 300

Ile Leu Ile Leu Asn
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<210> 122

<211> 222

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<213> Babesia microti

<400> 122

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Asp Ala Thr Ser Val Ser Ile Ala Asn Ser Ile Pro Thr Ser Ala Ala
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Thr Ala Ala Gln Ser Thr Thr Ala Ala Thr Ser Thr Thr Ala Ala Thr
35 40 45

Ser Thr Thr Ser Ala Thr Ser Thr Thr Ser Ala Thr Ser Thr Thr Ala
50 55 60

Thr Thr Ser Thr Thr Thr Ala Thr Ser Thr Thr Thr Ala Thr Ser Thr
65 70 75 80

Thr Ala Thr Thr Ser Thr Thr Ala Ala Thr Ser Thr Ile Ser Pro Ser
85 90 95

Leu Glu Thr Thr Gln Asp Val Ala Val Thr Asn Ile Val Asn Leu Asn
100 105 110

Ile Asn Glu Ile Gly Phe Val Asp Gln Val Pro Glu Gly Leu Ser Ser
115 120 125

Ser Tyr Val Phe Ser Thr Asp Gly Ile Phe Thr Lys Val Thr Pro Ala
130 135 140

Thr Gly Phe Ser Ile Gly Cys Val Ile Phe Gly Asn Gln Leu Ile Pro
145 150 155 160

Gln Ser Met Asp Val Ile Thr Arg Thr Val Ser Tyr Thr Thr Lys Tyr
 165 170 175

Pro Leu Ile Val Val Arg Ile Gln Asp Lys Thr Ser Ser Ser Thr Ser
 180 185 190

Thr Val Tyr Tyr Glu Gln Ser Gly Leu Gln Ser Ser Lys Phe Val Leu
 195 200 205

Arg Asp Asp Pro Glu Phe Thr Ser Gln Leu Thr Ser Ser Phe
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 20 25 30

Ser Leu Trp Lys Ser Lys Pro Ile Thr Thr Val Ser Thr Thr Asn Asp
 35 40 45

Thr Ile Thr Asn Lys Tyr Thr Ser Thr Val Ile Asn Ala Asn Phe Ala
 50 55 60

Ser Tyr Arg Glu Phe Glu Asp Arg Glu Pro Leu Thr Ile Gly Phe Glu
 65 70 75 80

Tyr Met Ile Asp Lys Ser Gln Gln Asp Lys Leu Ser His Pro Asn Lys
 85 90 95

Ile Asp Lys Ile Lys Ile Ser Asp Tyr Ile Ile Glu Phe Asp Asp Asn
 100 105 110

Ala Lys Leu Pro Thr Gly Ser Val Asn Asp Ile Ser Ile Ile Thr Cys
 115 120 125

Lys His Asn Asn Pro Val Leu Ile Arg Phe Ser Cys Leu Ile Glu Gly
 130 135 140

Ser Ile Cys Tyr Tyr Phe Tyr Leu Leu Asn Asn Asp Thr Asn Lys Trp
 145 150 155 160

Asn Asn His Lys Leu Lys Tyr Asp Lys Thr Tyr Asn Glu His Thr Asp
 165 170 175

Asn Asn Gly Ile Asn Tyr Tyr Lys Ile Asp Tyr Ser Glu Ser Thr Glu

180										185					190						
Pro	Thr	Thr	Glu	Ser	Thr	Thr	Cys	Phe	Cys	Phe	Arg	Lys	Lys	Asn	His						
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Lys	Ser	Glu	Arg	Lys	Glu	Leu	Glu	Asn	Tyr	Lys	Tyr	Glu	Gly	Thr	Glu						
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Leu	Ala	Arg	Ile	His	Cys	Asn	Lys	Gly	Lys	Cys	Val	Lys	Leu	Gly	Asp						
225					230					235					240						
Ile	Lys	Ile	Lys	Asp	Lys	Asn	Leu	Glu	Ile	Tyr	Val	Lys	Gln	Leu	Met						
				245					250					255							
Ser	Val	Asn	Thr	Pro	Val	Asn	Phe	Asp	Asn	Pro	Thr	Ser	Ile	Asn	Leu						
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Pro	Thr	Val	Ser	Thr	Thr	Asn	Asp	Thr	Ile	Thr	Asn	Lys	Tyr	Thr	Gly						
		275					280					285									
Thr	Ile	Ile	Asn	Ala	Asn	Ile	Val	Glu	Tyr	Cys	Glu	Phe	Glu	Asp	Glu						
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Pro	Leu	Thr	Ile	Gly	Phe	Arg	Tyr	Thr	Ile	Asp	Lys	Ser	Gln	Gln	Asn						
305					310					315					320						
Lys	Leu	Ser	His	Pro	Asn	Lys	Ile	Asp	Lys	Ile	Lys	Phe	Phe	Asp	Tyr						
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Ile	Ile	Glu	Phe	Asp	Asp	Asp	Val	Lys	Leu	Pro	Thr	Ile	Gly	Thr	Val						
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Asn	Ile	Ile	Tyr	Ile	Tyr	Thr	Cys	Glu	His	Asn	Asn	Pro	Val	Leu	Val						
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Glu	Phe	Ile	Val	Ser	Ile	Glu	Glu	Ser	Tyr	Tyr	Phe	Tyr	Phe	Tyr	Ser						
	370					375					380										
Met	Asn	Asn	Asp	Thr	Asn	Lys	Trp	Asn	Asn	His	Lys	Ile	Lys	Tyr	Asp						
385					390					395					400						
Lys	Arg	Phe	Asn	Lys	His	Thr	Asp	Met	Asn	Gly	Ile	Asn	Cys	Tyr	Glu						
			405						410					415							
Tyr	Val	Leu	Arg	Lys	Cys	Ser	Ser	Tyr	Thr	Arg	Lys	Asn	Glu	Tyr	Glu						
		420						425					430								
His	Lys	Glu	Leu	Ala	Arg	Ile	His	Cys	Asn	Glu	Glu	Lys	Cys	Val	Asn						
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 Arg Phe Asn Ala Phe Ile Lys Phe Leu Asn Glu Glu Lys Ser Arg Gly
 35 40 45
 Asp Lys Ser Ala Leu Asn Asp Glu Gly Leu Met Arg Phe Ile Ser Met
 50 55 60
 Thr Ser Gly Phe Ile Asp Asp Leu Glu Leu Val Leu Asp Glu Leu Ser
 65 70 75 80
 Lys His Ser Leu Leu Ile Asn Asn Glu Gly Ala Lys Ser Met Leu Ser
 85 90 95
 Ser Leu Ile Leu Ser Phe Arg Tyr Ile Asn His Ile Arg Asn Leu Ile
 100 105 110
 Asn Gly Ile Tyr Leu Gly Leu Asn Asn Pro Ser Ser Ser Ile Gly Glu
 115 120 125
 Thr Ala Gln Glu Thr Thr Glu Pro Ser Thr Pro Thr Pro Thr Pro Ser
 130 135 140
 Thr Gln Thr Ile Leu Lys Pro Lys Gly Ser Glu Ile Arg Gly Tyr Ile
 145 150 155 160
 Ile Lys Val Asp Gln Thr Ala Asn Leu Ile Thr Phe Ile Asp Ala Leu
 165 170 175
 Ile Lys Glu Leu Asn Val His Ile Lys Gln Thr Thr Thr Ser Ser Val
 180 185 190
 Val Gly Thr Lys Glu Thr Asn Gly Thr Thr Ser Gly Ser Pro Glu Ser
 195 200 205
 Asn Pro Gly Ser Thr Asp Ser Gly Ser Ile Gln Ala Glu Val Ala Glu
 210 215 220
 Leu Leu Lys Lys Phe Ala Thr Ile Ala Ser Phe Asp Glu Lys Phe Thr
 225 230 235 240
 Asn Leu His Ile Asn Lys Pro Phe Ala Asp Ala Leu Ile Lys Arg Leu
 245 250 255

Asn Glu Ile Lys Ala Glu Leu Ser Ser Asn Ser Gly Thr Pro Pro Lys
 260 265 270
 Leu Pro Asp Ile Ser Cys Leu Arg Leu Ser Glu Ile Val Gln Lys Leu
 275 280 285
 Asn Arg Leu Ile Lys Phe Asn Thr Ser Arg Leu Ile Asn Lys Ser Phe
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 Pro Glu Leu Cys Lys Leu Phe Ile Lys Met Pro Asp Val Asp Ser Asn
 305 310 315 320
 Lys Phe Met Ala Leu Asp Val Asp Ile Ser Asn Thr Leu Val Asn Arg
 325 330 335
 Arg Val Arg Tyr Ser Asp Gly Arg Phe Thr Ile Val Ser Thr Gly Ser
 340 345 350
 Asn Phe Arg Tyr Thr Leu Ala Pro Thr Ala Ala Gly His Asp Leu Ser
 355 360 365
 Leu Phe Ser Gln Leu Pro Ile Ser Met Ile Thr Val Thr Ser Pro Gln
 370 375 380
 Glu Gln Ala Leu Thr Ser Cys Val Ser His Gly Asn Glu Phe Ser Ile
 385 390 395 400
 Val Ser Thr Ala Gly Lys Thr Thr Tyr Thr Thr Gln Ser Lys Leu Leu
 405 410 415
 Ser Leu Phe Lys Leu Ser Ala Glu Thr Leu Arg Asp Phe Asn Glu Ala
 420 425 430
 Arg Phe Ala Leu Gly Asn Met Thr Asp Ser Ala Asn Lys Ser Lys Ala
 435 440 445
 Leu Glu Val Tyr Lys Ser Thr Leu Thr Thr Met Lys Ser Ile Ser Val
 450 455 460
 Glu Leu Glu Lys Ile Phe Gly Ile Leu Lys Ser Thr Pro Asn Ile Thr
 465 470 475 480
 Phe Glu Ser Val Val Ser Lys Tyr Lys Leu Thr Gly Val Asn Thr Val
 485 490 495
 Asp Thr Ala Asn Ala Asp Val Ile Asn Glu Thr Met Phe Asp Asp Leu
 500 505 510
 Ser Lys Ala Ile Ser Ser Tyr Leu Tyr Ser Leu Ile Ser Ile Ile Phe
 515 520 525
 Pro Glu Asp Ile Lys Gly Gln Gly Thr Ser Glu Gly Gln Gln Thr Ser
 530 535 540

Glu Gly Gln Gln Thr Ser Glu Gly Gln Gln Thr Ser Gly Asp Gln Asp
 545 550 555 560
 Thr Ser Gly Gly Gln Asp Thr Asn Glu Thr Ile Phe Ser Tyr Leu Tyr
 565 570 575
 Ser Leu Ile Ser Ile Ile Phe Pro Glu Asp Ile Lys Gly Gln Gly Thr
 580 585 590
 Ser Ala Gln Leu Leu Glu Tyr Arg Thr Gln Leu Ala Ser Leu Ser Lys
 595 600 605
 Ile Lys Ser Leu Arg Lys Lys Ile Lys Arg Arg Leu His Ser Tyr
 610 615 620
 Pro Thr Phe Cys Ser Leu Ser Tyr Val Pro Ser Thr Ser Val Ser
 625 630 635
 Phe Cys Arg Asn Glu Phe Leu Leu Asn Met Val Ser Phe Ser Gln Ser
 640 645 650
 Leu Phe Ile Leu Phe Pro Leu Leu Phe Ser Cys Trp Thr Glu Val
 655 660 665
 Leu Met Gly Asn Tyr Ile Tyr Pro His Tyr Phe Ser Pro Ser Ile Leu
 670 675 680 685
 Met Leu Tyr Thr Leu Phe Ile Thr Pro Arg Val Ser Pro Pro Cys Leu
 690 695 700
 Ser Pro Phe Leu Pro Thr Ser Pro Gln Pro Thr Thr His Gly Val
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 Lys Ala

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<400> 125

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Asn Ile Glu Asp Leu Gly Thr Gln Lys Asn Lys Ser Ser Pro Leu Gly
 35 40 45

Lys Ile Gly Thr Ser Met Asp Asp Ile Ile Ala Met Phe Ser Asn Pro
 50 55 60
 Asn Met Tyr Leu Val Lys Val Ala Tyr Leu Gln Ala Ile Glu His Ile
 65 70 75 80
 Phe Leu Ile Ser Thr Lys Tyr Asn Asp Ile Phe Asp Tyr Thr Ile Asp
 85 90 95
 Phe Ser Lys Arg Glu Ala Thr Asp Ser Gly Ser Phe Thr Asp Ile Leu
 100 105 110
 Leu Gly Asn Lys Val Lys Glu Ser Leu Ser Phe Ile Glu Gly Leu Ile
 115 120 125
 Ser Asp Ile Lys Ser His Ser Leu Lys Ala Gly Val Thr Gly Gly Ile
 130 135 140
 Ser Ser Ser Ser Leu Phe Asp Glu Ile Phe Asp Glu Leu Asn Leu Asp
 145 150 155 160
 Gln Ala Thr Ile Arg Thr Leu Val Ala Pro Leu Glu Glu Ile Lys Asn
 165 170 175
 Glu Leu Lys Thr Ile Ser Ser Gln Lys Ile Ala Asp Ala Thr Val Thr
 180 185 190
 Pro Ser Thr Pro Asn Thr Asn Val Asn Ile Lys Thr Ile Ile Ser Lys
 195 200 205
 Ile Lys Lys Ile Leu Met Ile Ser Glu Thr Ile Ser Ser Thr Ala Leu
 210 215 220
 Ala Arg Leu Ser Ala Val Leu Ser Ile Leu Gly Arg Gly Thr Ser Thr
 225 230 235 240
 Asn Val Ile Pro Glu Arg Leu Thr Ser Ile Val Val Asp Leu Lys Ser
 245 250 255
 Ala Thr Val Pro Gln Glu Val Ala Leu Lys Asn Gly Val Tyr Lys Leu
 260 265 270
 Lys Asp Gln Phe Lys Leu Thr His Lys Met Ile Pro Val Phe Gly Ser
 275 280 285
 Val Gln Leu Gln Ile Pro Glu Lys Ser Thr Val Val Gln Ile Ser Val
 290 295 300
 Val Glu His Glu Asn Asp Thr Lys Met Ala Ile Ile Thr Leu Asp Asp
 305 310 315 320
 His Ser Lys Leu Thr Leu Glu Arg Val Ile Leu Ser Glu Thr
 325 330

<210> 126
 <211> 268
 <212> PRT
 <213> Babesia microti

<400> 126

Lys Tyr Lys Tyr Ala Leu Glu Ser Gly Glu Pro Arg Arg Val Glu Met
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Gly Ser Arg Phe Ser Glu Met Gly Ser Arg Phe Ser Val Ser Pro Trp
 20 25 30

Ala Trp Leu Glu Cys Pro Ser Cys Leu Pro Ser Pro Leu Phe Gln Val
 35 40 45

Thr Met Ser Pro Ser Gln Ser Pro Arg Trp Ser Ser Cys Pro Pro Leu
 50 55 60

Ser Ser Trp Leu Leu Pro His Pro Arg His Ile Pro Ile Lys Asp Cys
 65 70 75 80

Arg Leu Ser Tyr Cys Tyr Pro Cys Arg Val Leu Met Pro Leu Arg Pro
 85 90 95

Gly Thr Ser Ser Ala Ser Val Pro Ser Arg Pro His Ser Ala Pro Pro
 100 105 110

His Val Ala Gly Pro Pro Ser Ala Pro Arg Asp Leu Gln Tyr Ser Leu
 115 120 125

Ser Arg Ser Pro Leu Ala Leu Arg Leu Arg Trp Leu Pro Pro Ala Asp
 130 135 140

Ser Gly Gly Arg Ser Asp Val Thr Tyr Ser Leu Leu Cys Leu Leu Cys
 145 150 155 160

Gly Arg Asp Gly Pro Ala Gly Ala Cys Gln Pro Cys Gly Pro Arg Val
 165 170 175

Ala Phe Val Pro Arg Gln Ala Gly Leu Arg Glu Arg Ala Ala Thr Leu
 180 185 190

Leu His Leu Arg Pro Gly Ala Arg Tyr Thr Val Arg Val Ala Ala Leu
 195 200 205

Asn Gly Val Ser Gly Pro Ala Ala Ala Ala Glu Ala Thr Tyr Ala Gln
 210 215 220

Val Thr Val Ser Thr Gly Pro Gly Gly Glu Ala Thr Arg Pro Ser Gly
 225 230 235 240

Val Arg Pro Pro Pro Gln Pro Gln Phe Pro Leu Cys Ile Pro Ser His

255

<400> 127																
Val	Asn	Ala	Leu	Ile	Lys	Glu	Leu	Asn	Ala	His	Ile	Lys	Gln	Arg	Ala	
				5					10					15		
Thr	Ser	Thr	Thr	Thr	Ile	Ile	Ile	Glu	Thr	Asn	Ala	Lys	Asp	Val	Asp	
				20					25					30		
Glu	Leu	Val	Lys	Lys	Phe	Ala	Thr	Ile	Ala	Ser	Phe	Asp	Asp	Lys	Phe	
			35					40					45			
Lys	Asn	Val	Phe	Phe	Asp	Asn	Ser	Val	Ile	Asp	Glu	Ile	Val	Lys	Thr	
			50					55					60			
Leu	Glu	Lys	Met	Lys	Val	Glu	Ser	Asp	Thr	Val	Leu	Pro	Ser	Cys	Asn	
			65					70					75			
Gly	Ile	Gln	Thr	Thr	Glu	Asn	Ser	Ser	Thr	Asp	Pro	Tyr	Thr	Val	Leu	
				85					90					95		
Ser	Lys	Leu	Ile	Lys	Lys	Ile	Asn	Asp	Ser	Ile	Ile	Arg	Pro	Met	Thr	
			100					105					110			
Ser	Arg	Leu	Ile	Asn	Lys	Ser	Phe	Pro	Glu	Leu	Cys	Lys	Leu	Phe	Ile	
			115					120					125			
Lys	Met	Pro	Asp	Val	Asp	Ser	Asn	Lys	Phe	Met	Ala	Leu	Asp	Val	Asp	
			130					135					140			
Ile	Ser	Asn	Thr	Leu	Val	Asn	Arg	Arg	Val	Arg	Tyr	Ser	Asp	Gly	Arg	
				145					150					155		
Phe	Thr	Ile	Val	Ser	Thr	Gly	Ser	Asn	Phe	Arg	Tyr	Thr	Leu	Ala	Pro	
				165					170					175		
Thr	Ala	Ala	Gly	His	Asp	Leu	Ser	Leu	Phe	Ser	Gln	Leu	Pro	Ile	Ser	
			180					185					190			
Met	Ile	Thr	Val	Thr	Ser	Pro	Gln	Glu	Gln	Ala	Leu	Thr	Ser	Cys	Val	
			195					200					205			
Ser	His	Gly	Asn	Glu	Phe	Ser	Ile	Val	Ser	Thr	Ala	Gly	Lys	Thr	Thr	
			210					215					220			

Tyr Thr Thr Gln Ser Lys Leu Leu Ser Leu Phe Lys Leu Ser Ala Glu
225 230 235 240

Thr Leu Arg Asp Phe Asn Glu Ala Arg Phe Ala Leu Gly Asn Met Thr
245 250 255

Asp Ser Ala Asn Lys Ser Lys Ala Leu Glu Val Tyr Lys Ser Thr Leu
260 265 270

Thr Thr Met Lys Ser Ile Ser Val Glu Leu Glu Lys Ile Phe Gly Ile
275 280 285

Leu Lys Ser Thr Pro Asn Ile Thr Phe Glu Ser Val Val Ser Lys Tyr
290 295 300

Lys Leu Thr Gly Val Asn Thr Val Asp Thr Ala Asn Ala Asp Val Ile
305 310 315 320

Asn Glu Thr Met Phe Asp Asp Leu Ser Lys Ala Ile Ser Ser Tyr Leu
325 330 335

Tyr Ser Leu Ile Ser Ile Ile Phe Pro Glu Asp Ile Lys Gly Gln Gly
340 345 350

Thr Ser Glu Gly Gln Gln Thr Ser Gly Gly Gln Asp Thr Asn Glu Thr
355 360 365

Ile Phe Ser Tyr Leu Tyr Ser Leu Ile Ser Ile Ile Phe Pro Glu Asp
370 375 380

Ile Lys
385

<210> 128

<211> 1371

<212> DNA

<213> Babesia microti

<400> 128

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attggtgagt tccataggtt gggttgttca cagtgcattt taaaagttaa attcttgaga 120
gctggttttg aggttctatt aggggagtg cgtacttgta taccttggac tgaagaccag 180
tcctcctcta ttccgggaag gtcgtcctct tcgaccaagc atgcagcttc aggatggaca 240
cacatggagt gttgagggag gaaagagatc cccctaagcc agatagatca actaaatgaa 300
ccttggaat aaatggggtg acagatgtag cagcgagatt gccctcacat actgaaaatg 360
aaataattaa ccaccattag ttttccatct gatacctagg cactctctaa tttaattcaa 420
cattctgaaa agtgtctttg aaagatttgt ggcaaccacc tattatccct ccaatgggta 480
ggcaaagaca ggtgaatcga agtatgttgt agggaggcta gtcttaatat agggttcaac 540
tacagggaag acttcatgct aagatgctat ttcagataaa aaagaaatgt gtgtttttta 600
tcgacttctt tattgtggca ccatagagca ttgaaaagca ccgatgctg ttttgtggta 660
tcagatcaca ttattttcac agttgaaagg cattataaaa cagggtttgt tgacactaga 720
ctttaatccc agcatttggg aaacagaggc aggtggatct tggagattcg tgctagcctg 780
gtctacagtg ggagtttaag gatagctggg atttcaatga gaaaccatgt ccctgggggtg 840
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aggggaagga agaaaaaaag ataatgtagt atgatacagg ataaaaattta atagcatctt 900
ttaagaatt atgagaacac tctctgtcac tgggttctat ggattcagtt tattgtttta 960
ctgtgggtgt ttagctctgc ttctatcagt cactggatga aggtactaga atggcatata 1020
acactggaac acttaacagc ttacttgagg ctagtaagtg aagcacatga tgacaggat 1080
ggaggggttg tgcagaatgg aactaagttc tagagaattt gcagaaatgg tcattatagg 1140
acactgggtg aaaggtgcct ctctgtacac ttcttaaagc tctgtccgtt gcttgataa 1200
tatgtgatct cttggacagt gatgtacctg accttccctc tgtctctgtt ctctttctcc 1260
ttcttttccc ctccctctcg cttccctcc tctgcccctc cctctcttct attcccttct 1320
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<210> 129

<211> 2417

<212> DNA

<213> Babesia microti

<400> 129

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tcttctgtgt ctacctgcaa attcatgaca gatgaaatta acttgttttc tattcgtttt 180
ctcctcttat ttctgccagt attataattt caggaaggaa catgcatcat aaattacatg 240
taactttcat gttgcagtga tgctgttttc tatttttgat ctcatctgac agcagtaaag 300
tcatacaaaa aataataaat acctctcatg gagcttgcca ttctctctgc atcttttttg 360
gggaagaagt ggcctgaaga gtagagcgtt aagactcaca aagtcaagaa ctttcagata 420
gaaccagacc atcaattgca gccacaatgg gtgctgaatc caacttcttg atttgttttt 480
aaaggattta ggaataatat tgattagcac ttgtcagggt cacaatccag gacctaatc 540
aagacacacc tcagggtgaat ttctgagaga ttatccatat tagttaattg aggagggaaa 600
ctctacctta attgtccatg ggaccagttc aacagctaga gtactgaact gcataaaaag 660
gagaaagtga cctgggcagg aacatgacca ttctcttgcg cctcgtctga gaagaaatgt 720
gatcagcctc tttaaagtcc tgtagcagtg actcccatgc cacaatgaac tgtagccaat 780
ttcatcatac tgctctagct tccttctctt ctttataata ctttgtactg atgtgaccaa 840
attctgaacc ctcaagtcac caagaaaccc attccaaggc aaaagcaaac agacttgtat 900
tatttaacaa gttaatgcca tctactccgg tccttcatac gttcatcatg gtgggtggaa 960
tgagaaggac cccaatgggc catgaggcag ggaatttatt gggcacagca aggggagtgt 1020
ctagggtcat tgtagctga ctgagagtgc agtgctttgc ctgcaatcct gagcgcat 1080
attcggctct taaggtagcc aacctgcctt ggggggactg tctgtcttca atagcagtaa 1140
aggccgaaca atcatggctg cattgtgact ttgtgtgact ctaatcttac atagaagagt 1200
aattcagagc cccgtgttgc tctctggccc cctgcgtgtg ggagggtgcc gacgtgatcc 1260
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ttctgaaaa taacagcaag gttttcttaa gaattcacca agtgcaggct ggagagaggg 1440
cccagagggt aagagtactg gctgctcttc cagaggctct gagttcaatt cccagcacc 1500
acagggtggc tcacaacat ctgtaatgag atcgtctgcc ctcttctggc ccgaggcgag 1560
aacactgtat atataataag taaataaatc tcttttttaa aaagagtga gtactgaagc 1620
aaccocatac caccgtgtgt caatatgtga tttaaaaaaa aagaattaac taagtgcagg 1680
atactgtggc cattgtctgc ccctggaagg tccgtgtgcc caggaaaagt ctgcgtgctc 1740
ctgtctccag gccatgcaga gggctgaatc ccccgctccg cccccacacg cacaacatat 1800
actcgttttg tctcctctgc agaactctaga ttccacatac atattacacg caagcagaaa 1860
gttgaccgtt agagaaattg ctttctatta atttttaatt taaggagat tgactacatc 1920
aatgaattaa gaactgatac atcaatattg aattctggaa gatgaactgg ggagaatgct 1980
ccatgtggaa attgttcacc atataacctg ggggatatgg gctcagcctc agtactcttg 2040
tagcaaacct gacacagcag cacaccttga gcccttgcac aggacatgca aagacagaat 2100
gatgatacca gtggcttttg ggccagccaa gctctaccca ttaagggaag actaacagtc 2160
ggtaaccagg aactcagggt cagtacctgc ctgtggcttt ataaaactta cttctagt 2220
agatttccat tttatgtttc attattccag atattctgtt tttgatctat ctgcttatga 2280

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tttatatttc ctaaattctc aacttgtaaa tggcattaga aggatggaat tgtacagttt 2340
cactttgtaa ttgttaagtc ctatgctgtg tttttgcatg tttttgaagt gttttcagta 2400
agtatttact tattttat                                     2417

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<210> 130
<211> 1333
<212> DNA
<213> Babesia microti

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<400> 130
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tctctatttg tgtgataaac accagagcta agcccaactt gaagttgtca catgggtctcc 120
acacaaatac acacacacac acacacacac acacacctat gtatgcacat gcaacccccac 180
acacatacaa aaaaaaaaga acctctactc tttaacagca ataaaaaatg aactaggtga 240
aaagaaaacc aaccttgctt catcatttag tcatagaaaa tgatactgtg gttgtcattt 300
actatcatta acctaaaata aatgtgtccc tacctaaggg tataaaactgt tatctggcct 360
tgtacagatt ttggatcttg aattctttta gtgggttgcc caatagcatt ttaagggtccc 420
agaataaata gacaggatga aatgggatgg gctagagtag aatggaggct aatatcagaa 480
caaatcagac agtgaggata tacttggctt tacaagaatc ctatttacac acacatgcac 540
atgtactgtc agtatgtact gctacatcaa caacatctgc tacatcaaca acagctacca 600
catcaacaac aactgccaca tcaacaacaa ctgccacatc aacaacagct accacatcaa 660
caacagctgc cacatcaaca atttctccgt ctctggagac cacacaagat gttgctgtca 720
caaatattgt gaatcttaac ataaacgaaa taggatttgt tgatcaagtt ccagagggtc 780
tttcttctag ttacgttttt tctactgatg gaatctttac caaagttacc ccagctacag 840
ggttttcaat tggttgtgta atatttggca atcaattaat tccacagtcc atggatgtta 900
tcactaggac cgtttcatac accactaaat atcctttgat tgttggttagg attcaagata 960
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ttgttttgag ggatgaccca gaatttatta ttctcaaaa tcgaagtagt acttatacag 1080
tcaatgacat aacatataaa tcatttgata tttctagtgc cgatgataac gaatttttaa 1140
aaatatcatt aagtgatggg agcatgttgt acaccaataa tccagattcc aaaatttaca 1200
tcagcgaagt taaggtttgt gagataacaa taccaataaa tataacatca caatatacac 1260
tgatcaaatt atcatttaat ggtgaattgg ttgagttgta tactacagga tgtttcgggtg 1320
aacataatat taa                                     1333

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<210> 131
<211> 537
<212> DNA
<213> Babesia microti

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<400> 131
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tcgaactcac taacctgacc aacacggtaa aatcagcgag cgccaccct ccccaactaa 120
aagtgttggc tctgaagttt ggcaacaaga tcgttgatgt cgaggagaca ggcaggacat 180
ttgttacatt tgatgagaag ttgaattcaa tagaaataat taccttcgaa aatgatggca 240
ctatgacatc aaaattttat tccagggagt ccctagactc aacaacctac attggacatg 300
cctctacgta cacacttccc gaagtgttta ccaggtcatt atgtggtaaa gaggacttat 360
gtacgcttga cattacggat ctattgttga aagagattag tgctaagaaa ttggaggagt 420
gtaggaagaa gaatgcatct agtgggtact catctggtgg tacaccttct aatgttccag 480
aggagtgtgt aattagaacc aacttacaga tggttatgaa gaagaatgct cgtgccg 537

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<210> 132
<211> 178
<212> PRT
<213> Babesia microti

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<400> 132
Met Glu Gly Tyr Leu Asp Leu Asp Leu Asn Ser Lys Ile Gly Asn Phe
5 10 15

Ile Ser Ala Ile Glu Leu Thr Asn Leu Thr Asn Thr Val Lys Ser Ala
20 25 30

Ser Val His Pro Pro Gln Leu Lys Val Leu Ala Leu Lys Phe Gly Asn
35 40 45

Lys Ile Val Asp Val Glu Glu Thr Gly Arg Thr Phe Val Thr Phe Asp
50 55 60

Glu Lys Leu Asn Ser Ile Glu Ile Ile Thr Phe Glu Asn Asp Gly Thr
65 70 75 80

Met Thr Ser Lys Phe Tyr Ser Arg Glu Ser Leu Asp Ser Thr Thr Tyr
85 90 95

Ile Gly His Ala Ser Thr Tyr Thr Leu Pro Glu Val Leu Thr Arg Ser
100 105 110

Leu Cys Gly Lys Glu Asp Leu Cys Thr Leu Asp Ile Thr Asp Leu Leu
115 120 125

Leu Lys Glu Ile Ser Ala Lys Lys Leu Glu Glu Cys Arg Lys Lys Asn
130 135 140

Ala Ser Ser Gly Thr Pro Ser Gly Gly Thr Pro Ser Asn Val Pro Glu
145 150 155 160

Glu Cys Val Ile Arg Thr Asn Leu Gln Met Val Met Lys Lys Asn Ala
165 170 175

Arg Ala

<210> 133

<211> 292

<212> PRT

<213> Babesia microti

<400> 133

Ser Arg Met Glu Ala Asn Ile Arg Thr Asn Gln Thr Val Arg Ile Tyr
5 10 15

Leu Ala Leu Gln Glu Ser Tyr Leu His Thr His Ala His Val Leu Ser
20 25 30

Val Cys Thr Ala Thr Ser Thr Thr Ser Ala Thr Ser Thr Thr Ala Thr
35 40 45

Thr Ser Thr Thr Thr Ala Thr Ser Thr Thr Thr Ala Thr Ser Thr Thr
 50 55 60
 Ala Thr Thr Ser Thr Thr Ala Ala Thr Ser Thr Ile Ser Pro Ser Leu
 65 70 75 80
 Glu Thr Thr Gln Asp Val Ala Val Thr Asn Ile Val Asn Leu Asn Ile
 85 90 95
 Asn Glu Ile Gly Phe Val Asp Gln Val Pro Glu Gly Leu Ser Ser Ser
 100 105 110
 Tyr Val Phe Ser Thr Asp Gly Ile Phe Thr Lys Val Thr Pro Ala Thr
 115 120 125
 Gly Phe Ser Ile Gly Cys Val Ile Phe Gly Asn Gln Leu Ile Pro Gln
 130 135 140
 Ser Met Asp Val Ile Thr Arg Thr Val Ser Tyr Thr Thr Lys Tyr Pro
 145 150 155 160
 Leu Ile Val Val Arg Ile Gln Asp Lys Thr Ser Ser Ser Thr Ser Thr
 165 170 175
 Val Tyr Tyr Glu Gln Ser Gly Leu Gln Ser Ser Lys Phe Val Leu Arg
 180 185 190
 Asp Asp Pro Glu Phe Ile Ile Pro Gln Asn Arg Ser Ser Thr Tyr Thr
 195 200 205
 Val Asn Asp Ile Thr Tyr Lys Ser Phe Asp Ile Ser Ser Ala Asp Asp
 210 215 220
 Asn Glu Phe Leu Lys Ile Ser Leu Ser Asp Gly Ser Met Leu Tyr Thr
 225 230 235 240
 Asn Asn Pro Asp Ser Lys Ile Tyr Ile Ser Glu Val Lys Val Gly Glu
 245 250 255
 Ile Thr Ile Pro Ile Asn Ile Thr Ser Gln Tyr Thr Leu Ile Lys Leu
 260 265 270
 Ser Phe Asn Gly Glu Leu Val Glu Leu Tyr Thr Thr Gly Cys Phe Gly
 275 280 285
 Glu His Asn Ile
 290

<210> 134

<211> 215

<212> PRT

<213> Babesia microti

Val Gln Thr Phe Glu Asn Asp Gly Thr Met Thr Ser Lys Phe Tyr Ser

Arg Glu Ser Leu Asp Pro Thr Thr Tyr Ile Gly His Ala Pro Thr Asp
20 25 30

Ile Phe Thr Ser Pro Trp Ile Thr Thr His Met His Asn Lys Arg Leu
35 40 45

Val Asp Phe Glu Val Pro Phe Glu Ala Ile Phe Asp Asp Lys Leu Ile
50 55 60

Ser Tyr Tyr Thr Gly Thr Asp Val Asn Gly Lys Asn Lys Val Pro Ala
65 70 75 80

Glu Leu Thr Lys Ala Ile Cys Gly Lys Glu Asp Val Cys Glu Leu Asn
85 90 95

Ile Thr Gly Leu Leu Leu Lys Asp Ile Ser Ala Lys Lys Leu Glu Glu
100 105 110

Cys Arg Lys Lys Asn Ala Ser Ser Gly Thr Pro Ser Gly Gly Thr Pro
115 120 125

Ser Asn Val Pro Glu Glu Cys Val Ile Lys Ser Asn Leu Gln Thr Val
130 135 140

Met	Lys	Lys	Asp	Val	Thr	Thr	Thr	Leu	Lys	Ser	Asp	Asp	Val	Ser	Asn
145					150					155					160

Tyr Ser Val Val Ser Ile His Phe Tyr Ile Asp Asn Val Phe Arg His
165 170 175

Asn Thr Ala Phe Gly Arg Ile Lys Ile Gly Asn Leu Asp Leu Pro Ala
180 185 190

Phe Ser Ile Gly Phe Ile His Ser Ile Phe Val Glu Arg Val Leu Met
195 200 205

Gly Asp Lys Ser Leu Ala Ser
210 215

<211> 2560

<213> Babesia microti

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accagtatta gtcatcaagt tgacgataat cgtattgaat attatgaaac cttttgtgat 180

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ggtagcctttc ccccttataa tacagaatat ggtaaacaaa aatgtagtga gcaaaaatga 240
gtaaaagtgt atagtattaa ggataagaat ttggaaatft atgtaaaata atttaatgaa 300
gtataatatt attttaaata attcgaaatt taagaaatta atataattaa ttattataaa 360
aataaagtta tttatatcta aattttataat aatcaaattg ttattttaaca tatggatcta 420
tattgtgtga tgaacaatg gattattaaag ggaatcatat cattgtcagt taaaagtgat 480
attggtaaca atattacaaa tatatccaat gatactttta tattaataag catctatact 540
tgcaatcatt ataaactgga gatacgttta tattaacatt gtattaggaa taaggataaa 600
cacaaatgat atgccataat aaaagttaaag tcaaattgact agtatattat acaacgataa 660
agtaataata taaaatatac taatatatct atgttatata aaatatgtct atactatagt 720
attttattat gtgatatagt catatatattg tagaaataat tagtattatt tatgttatca 780
tacaatattt atcattatca aatcttactg ttatatattt attattatag agcaattttt 840
atacaatata caataaaatt aagcgataaa ccataaacat cacgtatgca ggcaaataaa 900
gacaaaatta tttgacccca tataataaat taactatgtt attacataat aatcaacaag 960
aatataacgt ctatcaattt ataacttgaa cttatatfta ttatctgaag attaatcaa 1020
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attgtggata aggatgaagt cagtttagacc aatactaatt cattttatta cattcttttt 1140
aacaagtgga aatgtctttg caggaaatgg tgatgttaat caatattcaa gtgatttttg 1200
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ttctgaacag atcacggaca ctatgtttca tacctacaaa aatagtattg atatactaaa 1320
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aagtaaaact gtggaatttg acgtcatttt ttcaaacatt gatttaaata atagtacgg 1440
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aattgttgat gaaatatact ataaggctct tggtaacaatt gaaggtgaaa atgctgaaaa 1560
ttttgagtat gaaattaaaga aaaagaaaagc tgaactactt agaaacctgc tgaatgataa 1620
tattaaacca attatgggat atttaactga gatatacaat atgcacatac caattatato 1680
aaataaaagc gaatttaatg atatcaagaa agcatttgaa aagcacgaat tagaagctaa 1740
tgttttgata tccaagatat tagaaaataa tcagaatttt ggcactaatt ttaatgacat 1800
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tactgcatta atattaattc taaattaaat gaaattcaga tgtatatatt attatatagt 2040
acaaaattta cacattttatt atatacatga acgaacatct tgctcttaaa taaagaaatt 2100
gagatataaa tggaaataaa ttaaagtaac atgagaaaga tgaatataat attaaaaat 2160
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tagtatataa tgattctaca ttataacaag cgagaataaa taattattga ttagtcataa 2280
tattatgtat atgttaaagg ttaggtttat gtgttgctaa tatgttatat aattgtatac 2340
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agtatataat tataataatg tttataaaaa tgacattaat ttgaaagttt aaattaaaaat 2460
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<210> 136

<211> 309

<212> PRT

<213> Babesia microti

<400> 136

Gln Leu Trp Ile Arg Met Lys Ser Val Arg Pro Ile Leu Ile His Phe
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Ile Thr Phe Phe Leu Thr Ser Gly Asn Val Phe Ala Gly Asn Gly Asp
20 25 30

Val Asn Gln Tyr Ser Ser Asp Phe Gly Arg Ala Leu Asn Asp Leu Met

35										40										45									
Ile	Ala	Phe	Asn	Glu	Ala	Lys	Lys	Met	Tyr	Ala	Lys	Phe	Ser	Glu	Gln														
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Ile	Thr	Asp	Thr	Met	Phe	His	Thr	Tyr	Lys	Asn	Ser	Ile	Asp	Ile	Leu														
65					70					75					80														
Lys	Ala	Asp	Glu	Lys	Asn	Gly	Gly	His	Lys	Asn	Tyr	Leu	Glu	Lys	Lys														
				85					90					95															
Glu	Ile	Glu	Leu	Lys	Ser	Lys	Thr	Val	Glu	Phe	Asp	Val	Ile	Phe	Ser														
			100					105					110																
Asn	Ile	Asp	Leu	Asn	Asn	Ser	Thr	Val	Lys	Asn	Glu	Ile	Ile	Lys	Leu														
		115					120					125																	
Leu	Asn	Asp	Ile	Ser	Thr	Ile	Ser	Thr	Asp	Ile	Lys	Ser	Ile	Val	Asp														
	130					135					140																		
Glu	Ile	Tyr	Tyr	Lys	Ala	Leu	Gly	Thr	Ile	Glu	Gly	Glu	Asn	Ala	Glu														
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Leu	Leu	Asn	Asp	Asn	Ile	Lys	Pro	Ile	Met	Gly	Tyr	Leu	Thr	Glu	Ile														
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Tyr	Asn	Met	His	Ile	Pro	Ile	Ile	Ser	Asn	Lys	Ser	Glu	Phe	Asn	Asp														
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Ser	Lys	Ile	Leu	Glu	Asn	Asn	Gln	Asn	Phe	Gly	Thr	Asn	Phe	Asn	Asp														
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Asp	Val	Met	Asn	Asn	Thr	Ile	Gly	Asp	Leu	Gly	Ile	Val	Ile	Asp	Ser														
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Ile	Leu	Ile	Leu	Asn																									
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caattctcta	gattagggca	ccactcagac	atggcatctg	atataaatga	tgaagaacca	240
tcatttaaaa	tcggcgagaa	tgacataatt	caaccaccct	gggaagatac	agctccatac	300
cattcaatag	atgatgaaga	gcttgacaac	ttaatgagac	taacggcgca	agaaacaagt	360
gacgatcatg	aagaagggaa	tggcaaactc	aatacgaata	aagctgagaa	gactgaaaga	420
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cagacaccgc	aggaaacaag	tgacgctcat	gaagaagagc	atggcaatct	caataaagaat	1020
aaaagtggga	aggctggaat	aaaatcgcat	aatactcaga	caccgtgtga	aaaaaaagac	1080
ttttgtaaag	aaggggtgtca	tggttgcaat	aataagcccg	aggataatga	aagagaccgc	1140
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tcctctggtg	gctccggttc	taagcttaca	gatgatatta	agaaggcatt	tgacgaatgc	1380
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acagctggaa	ctactacgtc	tagtggaaat	gaagctggtg	gaactagtgg	aactactacg	1800
tctagtggag	ctgctagtgtg	taaagctgga	actggaacag	ctggaactac	tacgtctagt	1860
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caactgtctg	gtggagctgg	tagtgggtga	cctagtggac	atgcttctaa	tgcaaaaatt	1980
cctggaataa	tgacactaac	tctatttgca	ttattaacat	ttattgtaaa	ttga	2034

Gln Thr Pro Gln Glu Thr Ser Asp Ala His Glu Glu Gly His Asp Lys
 260 265 270
 Ile Asn Thr Asn Lys Ser Glu Lys Ala Glu Arg Lys Ser His Asp Thr
 275 280 285
 Gln Thr Thr Gln Glu Ile Cys Glu Glu Cys Glu Glu Gly His Asp Lys
 290 295 300
 Ile Asn Lys Asn Lys Ser Gly Asn Ala Gly Ile Lys Ser Tyr Asp Thr
 305 310 315 320
 Gln Thr Pro Gln Glu Thr Ser Asp Ala His Glu Glu Glu His Gly Asn
 325 330 335
 Leu Asn Lys Asn Lys Ser Gly Lys Ala Gly Ile Lys Ser His Asn Thr
 340 345 350
 Gln Thr Pro Leu Lys Lys Lys Asp Phe Cys Lys Glu Gly Cys His Gly
 355 360 365
 Cys Asn Asn Lys Pro Glu Asp Asn Glu Arg Asp Pro Ser Ser Pro Asp
 370 375 380
 Asp Asp Gly Gly Cys Glu Cys Gly Met Thr Asn His Phe Val Phe Asp
 385 390 395 400
 Tyr Lys Thr Thr Leu Leu Leu Lys Ser Leu Lys Thr Glu Thr Ser Thr
 405 410 415
 His Tyr Tyr Ile Ala Met Ala Ala Ile Phe Thr Ile Ser Leu Phe Pro
 420 425 430
 Cys Met Phe Lys Ala Phe Leu Gly Ser Ser Gly Gly Ser Gly Ser Lys
 435 440 445
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 450 455 460
 Ile Ile Leu Lys Lys Lys Ile Leu Asp Asn Asp Glu Asp Tyr Lys Ile
 465 470 475 480
 Asn Phe Arg Glu Met Val Asn Glu Val Thr Cys Ala Asn Thr Lys Phe
 485 490 495
 Glu Ala Leu Asn Asp Leu Ile Ile Ser Asp Cys Glu Lys Lys Gly Ile
 500 505 510
 Lys Ile Asn Arg Asp Val Ile Ser Ser Tyr Lys Leu Leu Leu Ser Thr
 515 520 525
 Ile Thr Tyr Ile Val Gly Ala Gly Val Glu Ala Val Thr Val Ser Val
 530 535 540

Ser Ala Thr Ser Asn Gly Thr Glu Ser Gly Gly Ala Gly Ser Gly Thr
545 550 555 560

Gly Thr Ser Val Ser Ala Thr Ser Thr Leu Thr Gly Asn Gly Gly Thr
565 570 575

Glu Ser Gly Gly Thr Ala Gly Thr Thr Thr Ser Ser Gly Thr Glu Ala
580 585 590

Gly Gly Thr Ser Gly Thr Thr Thr Ser Ser Gly Ala Ala Ser Gly Lys
595 600 605

Ala Gly Thr Gly Thr Ala Gly Thr Thr Thr Ser Ser Glu Gly Ala Gly
610 615 620

Ser Asp Lys Ala Gly Thr Gly Thr Ser Gly Thr Thr Thr Ser Ser Gly
625 630 635 640

Thr Gly Ala Gly Gly Ala Gly Ser Gly Gly Pro Ser Gly His Ala Ser
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660 665 670

Thr Phe Ile Val Asn
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gacgagttaa atttgatca agcaac

26

<210> 146
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<223> Primer

<400> 146
cataactcga gtcacatg aactttcagg

30

<210> 147
<211> 30
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<220>
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 gatgttatca ctaggaccgt ttcatacacc 30

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 <400> 148
 cataagaatt catcagtgc tggccagtgg 30

 <210> 149
 <211> 31
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 gtgaatgcat tgatcaagga gttgaacgct c 31

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 cccctcgagg tcgacggtat cgataagc 28

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 ctgagagtga aggatgcgct ttccacagag 30

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<400> 152

ctcgaactcg agctacagaa agtaggatac

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cattttatta cattctttttt aacaagtgg

29

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ccgagaattc attaatttag aattaatatt aatgcag

37

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cgcctcactc tgactttggc aacaaac

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cttgtagaat tcactagaaa gaacttgta gttggg

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tatgagcaat ctggttttaca atctagcaaa tttgttttga gggatgaccc agaatttatt 180
attcctcaaa atcgaagtag tacttataca gtcaatgaca taacatataa atcatttgat 240
atttctagtg ccgatgataa cgaattttta aaaatatcat taagtgatgg gagcatgttg 300
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tttgtcgtga ctcagaaagt ggatttttct atacctttg atttatttga atcaaattat 600
cacagcattt tactaccagc aggtgtgaac cattctatcc acattaatac tgaacagggg 660
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<213> Babesia microti

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tttgataatt ctgttattga tgaaattgtc aaaacgttgg aaaagatgaa ggttgagtca 240
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gtcgactcca acaaatttat ggctttggat gtggacataa gcaacactct tgtaaacagg 480
agagtcagat attctgatgg cagatttacc attgtaagca ctgggtccaa ttttagatac 540
acattggcac caactgccgc tggtcattgat ttgtctctct tctcccaatt gccaatctca 600
atgattacgg tcacatcgcc tcaggagcag gcacttacat cttgcgtcag tcatggtaac 660
gaattcagca tagtaagcac tgcaggcaag acaacttaca ctacacaatc taagttgttg 720
tcacttttca agttatctgc ggagacgtta agggatttta atgaagctag atttgacttt 780
ggtaacatga ctgatagtgc taataaatct aaagcttttg aggtctacaa atcgacacta 840
actactatga aatcaatatc agtcgaattg gaaaagattt ttggcatatt aaaatcaact 900
ccgaatatta cttttgaatc agttgtttct aaatacaaat tgactgggtg taatacagtt 960
gatactgcca atgctgatgt gatcaacgag acaatgtttg acgatttgtc caaggcaatt 1020
tcctcatacc tatactccct catatctata atttttccgg aggatattaa aggtcaagggt 1080
acaagtgaag gtcaacaaac aagtggaggt caggatacaa atgagacaat tttctcatal 1140
ctatactccc tcatatctat aatttttccg gaggatatta aaggtgccga attcgatatc 1200
aagcttatcg ataccgtcga cctcagagcac caccaccacc accactga 1248

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<210> 166

<211> 1842

<212> DNA

<213> Babesia microti

<400> 166

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atgcagcatc accaccatca ccacctgaga gtgaaggatg cgtcttccac agaggctacc 60
atacgcattg tcctccggtt caacgcattt ataaaaattt tgaatgagga gaaatccaga 120
ggtgacaaaa gtgcgttgaa tgatgagggg ttgatgaggt ttatatcgat gaccagtggg 180
tttatcgatg accttgaatt agttttagat gagttatcca agcacagttt gcttataaat 240
aacgaagggt ccaagagcat gctatcctct ctcatactaa gcttccgtta tattaatcac 300
ataagaaatt tgatcaatgg tatttacctt ggattgaata acccatcatc gtccattggg 360

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gagacagcac aagaaacaac tgaaccctcc actcccactc ccaactcccag cacacagaca 420
atcctgaaac cgaagggatc cgagataagg ggctatataa taaaagttga tcaaacagct 480
aatctcatca cattcataga tgcattgatc aaggagttga acgttcatat taaacagaca 540
acaacttcgt ctggtgttgg cactaaagaa actaatggca ctaccagtgg ttctoctgaa 600
agcaatcccg gttccaccga ttcaggttct attcaagctg aggtggcgga actattgaaa 660
aaatttgcaa caattgcac ttttgacgag aagttcacga acttacacat taataaacct 720
tttgccgatg cacttattaa aaggttgaat gaaataaagg ctgaactatc atctaatagt 780
ggaacccctc ccaaattacc cgatatatca tgtttaagac tatcagaaat tgtgcagaaa 840
cttaaccgtt taatcaaatt taatacttct cggctgatca acaaactcct tccggagttg 900
tgcaagttgt ttataaaaaat gcccgatgtc gactccaaca aatttatggc tttggatgtg 960
gacataagca acactcttgt aaacaggaga gtcagatatt ctgatggtag atttaccatt 1020
gtaagcactg ggtccaattt tagatacaca ttggcaccaa ctgccgctgg tcatgatttg 1080
tctctcttct cccaattgcc aatctcaatg attacggtca catcgctca ggagcaggca 1140
cttacatctt gcgtcagtc tggtaacgaa ttcagcatag taagcactgc aggcaagaca 1200
acttacacta cacaatctaa gttgttgtca cttttcaagt tatctgcgga gacgttaagg 1260
gatttttaatg aagctagatt tgcacttggt aacatgactg atagtgctaa taaatctaaa 1320
gctttggagg tctacaaatc gacactaact actatgaaat caatatcagt cgaattggaa 1380
aagatttttg gcatattaaa atcaactccg aatattactt ttgaatcagt tgtttctaaa 1440
tacaaattga ctggtgttaa tacagttgat actgccaatg ctgatgtgat caacgagaca 1500
atgtttgacg atttgtccaa ggcaatttcc tcatacctat actccctcat atctataatt 1560
tttccggagg atattaaagg tcaaggtaca agtgaaggtc aacaaacaag tgaagggtcaa 1620
caaacaagtg aaggtcaaca aacaagtgga gatcaggata caagtggagg tcaggatata 1680
aatgagacaa ttttctcata cctatactcc ctcatatcta taatttttcc ggaggatatt 1740
aaaggtcaag gtacaagtgc tcaattattg gagtatagaa ctcaattggc atctctgagc 1800
aagatcaaat ctctcagaaa aaaaataaaa agaaggctct ga 1842

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<210> 167

<211> 918

<212> DNA

<213> Babesia microti

<400> 167

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atgcagcatc accaccatca ccaccatttt attacattct ttttaacaag tggaaatgtc 60
tttgcaggaa atggtgatgt taatcaatat tcaagtgatt ttggacgagc attaaacgat 120
cttatgatcg cttttaacga ggctaaaaaa atgtatgcaa aatttttctga acagatcacg 180
gacactatga ttcataacctg caaaaatagt attgatatac tagaagcaga tgagaagaat 240
ggtggtcata aaaattacct tgaaaagaaa gaaattgagc tcaaaagtaa aattgtggaa 300
tttaacgcca ttttttcaaa cattgattta aataatagta cggttaaaaa tgaataatt 360
aaactgctta atgatataat cactatctct accgatatta agtcaattgt tgatgaaata 420
tactataagg ctcttggtac aattgaagggt gaaaatgctg aaaattttga gtatgaaatt 480
aagaaaaaga aagctgaact acttagaaac ctgctgaatg ataattattaa accaattatg 540
ggatatttaa ctgagatata caatatgcac ataccaatta tatcaaataa aagcgaattt 600
aatgatatca agaaagcatt tgaaaagcac gaattagaag ctaatgtttt gatatccaag 660
atattagaaa ataatcagaa ttttggcact aatttttaag acatttttaa tgaagtgaat 720
ggtgcaattg aagaatttaa taaaactatt gacgtcatga ataacaccat tggggacctt 780
ggtattgtta ttgacagcgg tattatttca agcataaaat catatatttc cacaatcgcc 840
aagatttcta attcaataat ccctggacaa atggcactag tttttactgc attaatatta 900
attctaaatt aatgatga 918

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<210> 168

<211> 696

<212> DNA

<213> Babesia microti

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<400> 168
atgcagcatc accaccatca ccaccgcctc actctgactt tggcaacaaa cactagagga 60
ggcgcaggta ccgatgccac aagtgtgagt atagcaaatt caatacctac ttcagcagca 120
accgcgcctc aatcaacaac agctgctaca tcaacaacag ctgctacatc aacaacatct 180
gctacatcaa caacatctgc tacatcaaca acagctacca catcaacaac aactgccaca 240
tcaacaacaa ctgccacatc aacaacagct accacatcaa caacagctgc cacatcaaca 300
attttctcogt ctctggagac cacacaagat gttgctgtca caaatattgt gaatcttaac 360
ataaacgaaa taggatttgt tgatcaagtt ccagagggtc tttcttctag ttacgttttt 420
tctactgatg gaatctttac caaagttacc ccagctacag ggttttcaat tggttgtgta 480
atatttggca atcaattaat tccacagtcc atggatgtta tctactaggac cgtttcatac 540
accactaaat atcctttgat tgttgtagg attcaagata agacttcogag ttctacttca 600
accgtttact atgagcaatc tggtttacaa tctagcaaatt ttgttttgag ggatgaccca 660
gaatttacat cccaactaac aagttctttc tagtga 696

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<210> 169

<211> 786

<212> DNA

<213> Babesia microti

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<400> 169
atgcagcatc accaccatca ccacggttct cgtttctctg agatggggtc aagattctct 60
gtgtctccct gggcctggct ggaatgtccc tcctgtcttc caagtcctct gttccagggtg 120
accatgtccc catcccagtc ccctcgatgg tcctcatgcc ctccctctcag ttccctggctg 180
ctccccacc cccgccacat ccccatcaag gactgcgggc tctcatactg ctacccatgc 240
agggtgctca tgcccttgcg ccccggcacc tctagtgtt ccgtcccctc ccggccccac 300
tcagcgccac cccatgtcgc agggcgcgcg tccgcgccac gggacctgca gtacagcttg 360
agccgctccc ccctggcgct ggcactgcgg tggtgcccgc ctgcggactc cggcggtcgt 420
tccgacgtca cctaactcgt gctgtgcctg ctctgcggcc gcgacggtcc ggcgggcgca 480
tgccaaccct gcgggccacg cgtggccttc gtcccgcgtc aggagggtt gcgagaacgc 540
gccgccacgc tgctgcacct gcggccgggc gcgcgctata ccgtgcgcgt gccgcgctc 600
aacggtgtct caggcccagc ggccgcgcgc gaagccacct acgcgcaggt caccgtgtcc 660
accggacccg gaggtgaggc caccgcgcgc agcggagtcc gtccccctcc ccaaccgcag 720
ttccctctat gcattccaag tcattcagga acccagtgta ctacacccca tgccccagg 780
tgatga 786

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<210> 170

<211> 561

<212> DNA

<213> Babesia microti

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<400> 170
atgcagcatc accaccatca ccacgagggc tatttagatc tcgatttgaa ttccaagatt 60
ggtaacttta tttcagccat cgaactcaact aacctgacca acacggtaaa atcagcgagc 120
gtccaccctc cccaactaaa agtggttggt ctgaagtttg gcaacaagat cgttgatgtc 180
gaggagacag gcaggacatt tgttacattt gatgagaagt tgaattcaat agaaataatt 240
accttcgaaa atgatggcac tatgacatca aaattttatt ccagggagtc cctagactca 300
acaacctaca ttggacatgc ctctacgtac acacttcccg aagtgtttac caggtcatta 360
tgttgtaaag aggacttatg tacgcttgac attacggatc tattgttgaa agagattagt 420
gctaagaaat tggaggagtg taggaagaag aatgcatcta gtggtactcc atctggtggt 480
acaccttcta atgttccaga ggagtgtgta attagaacca acttacagat ggttatgaag 540
aagaatgctc gtgcctgata a 561

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<210> 171

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<400> 172
Met Gln His His His His His His Asp Glu Leu Asn Leu Asp Gln Ala
      5              10              15

Thr Ile Arg Thr Leu Val Ala Pro Leu Glu Glu Ile Lys Asn Glu Leu
      20              25              30

Lys Thr Ile Ser Ser Gln Lys Ile Ala Asp Ala Thr Val Thr Pro Ser
      35              40              45

Thr Pro Asn Thr Asn Val Asn Ile Lys Thr Ile Ile Ser Lys Ile Lys
      50              55              60

Lys Ile Leu Met Ile Ser Glu Thr Ile Ser Ser Thr Ala Leu Ala Arg
      65              70              75              80

Leu Ser Ala Val Leu Ser Ile Leu Gly Arg Gly Thr Ser Thr Asn Val
      85              90              95

Ile Pro Glu Arg Leu Thr Ser Ile Val Val Asp Leu Lys Ser Ala Thr
      100             105             110

Val Pro Gln Glu Val Ala Leu Lys Asn Gly Val Tyr Lys Leu Lys Asp
      115             120             125

Gln Phe Lys Leu Thr His Lys Met Ile Pro Val Phe Gly Ser Val Gln
      130             135             140

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Leu Gln Ile Pro Glu Lys Ser Thr Val Val Gln Ile Ser Val Val Glu
 145 150 155 160
 His Glu Asn Asp Thr Lys Met Ala Ile Ile Thr Leu Asp Asp His Ser
 165 170 175
 Lys Leu Thr Leu Glu Arg Val Ile Leu Ser Glu Thr Pro Thr Val Val
 180 185 190
 Gly Leu Thr His Thr Thr Gln Asp Pro Leu Asp Val Leu Leu Ser Ile
 195 200 205
 Phe Val Lys Met Asp Asn Thr Thr Asp Asp Gly Val Met Glu Gly Tyr
 210 215 220
 Leu Asp Leu Asp Leu Asn Ser Lys Ile Gly Asn Phe Ile Ser Ala Ile
 225 230 235 240
 Glu Leu Thr Asp Leu Thr Asn Thr Val Lys Ser Ala Ser Val His Pro
 245 250 255
 Pro Gln Leu Lys Val Leu Ala Leu Lys Phe Gly Asn Lys Ile Val Asp
 260 265 270
 Val Glu Glu Thr Gly Arg Thr Phe Val Thr Phe Asp Glu Lys Leu Asn
 275 280 285
 Ser Ile Glu Ile Ile Thr Phe Glu Asn Asp Gly Thr Met Thr Ser Lys
 290 295 300
 Phe Tyr Ser Arg Glu Ser Leu Asp Pro Thr Thr Tyr Ile Gly His Ala
 305 310 315 320
 Pro Thr Asp Ile Phe Thr Ser Pro Trp Ile Thr Thr His Met His Asn
 325 330 335
 Lys Arg Leu Val Asp Phe Glu Val Pro Phe Glu Ala Ile Phe Asp Asp
 340 345 350
 Lys Leu Ile Ser Tyr Tyr Thr Gly Thr Asp Val Asn Gly Lys Asn Lys
 355 360 365
 Val Pro Ala Glu Leu Thr Lys Ala Ile Cys Gly Lys Glu Asp Val Cys
 370 375 380
 Glu Leu Asn Ile Thr Gly Leu Leu Leu Lys Asp Ile Ser Ala Lys Lys
 385 390 395 400
 Leu Glu Glu Cys Arg Lys Lys Asn Ala Ser Ser Gly Thr Pro Ser Gly
 405 410 415
 Gly Thr Pro Ser Asn Val Pro Glu Glu Cys Val Ile Lys Ser Asn Leu
 420 425 430

145 150 155 160
 165 170 175
 180 185 190
 195 200 205
 210 215 220
 225 230 235 240
 245 250 255
 260 265 270
 275 280 285
 290 295 300
 305 310 315 320
 325 330 335
 340 345 350
 355 360 365
 370 375 380
 385 390 395 400
 405 410 415
 420 425 430

Ser Lys Phe Val Leu Arg Asp Asp Pro Glu Phe Ile Ile Pro Gln Asn
 50 55 60
 Arg Ser Ser Thr Tyr Thr Val Asn Asp Ile Thr Tyr Lys Ser Phe Asp
 65 70 75 80
 Ile Ser Ser Ala Asp Asp Asn Glu Phe Leu Lys Ile Ser Leu Ser Asp
 85 90 95
 Gly Ser Met Leu Tyr Thr Asn Asn Pro Asp Ser Lys Ile Tyr Ile Ser
 100 105 110
 Glu Val Lys Val Gly Glu Ile Thr Ile Pro Ile Asn Ile Thr Ser Gln
 115 120 125
 Tyr Thr Leu Ile Lys Leu Ser Phe Asn Gly Glu Leu Val Glu Leu Tyr
 130 135 140
 Thr Thr Gly Cys Phe Gly Glu His Asn Ile Lys Lys Phe Arg Lys Val
 145 150 155 160
 Gly Ser Thr Tyr Asn Asp Ile Ser Asn Ala Phe Asp Ile Val Pro Trp
 165 170 175
 Ile Pro Ala His Phe Val Val Thr Gln Lys Val Asp Phe Ser Ile Pro
 180 185 190
 Phe Asp Leu Phe Glu Ser Asn Tyr His Ser Ile Leu Leu Pro Ala Gly
 195 200 205
 Val Asn His Ser Ile His Ile Asn Thr Glu Thr Gly Asn Val Asp Ser
 210 215 220
 Val Val Phe Phe Leu Asn Pro Leu Ala Lys His
 225 230 235

<210> 174

<211> 415

<212> PRT

<213> Babesia microti

<400> 174

Met Gln His His His His His His Val Asn Ala Leu Ile Lys Glu Leu
 5 10 15

Asn Ala His Ile Lys Gln Arg Ala Thr Ser Thr Thr Thr Ile Ile Ile
 20 25 30

Glu Thr Asn Ala Lys Asp Val Asp Glu Leu Val Lys Lys Phe Ala Thr
 35 40 45

Ile Ala Ser Phe Asp Asp Lys Phe Lys Asn Val Phe Phe Asp Asn Ser

50					55					60					
Val 65	Ile	Asp	Glu	Ile	Val 70	Lys	Thr	Leu	Glu	Lys 75	Met	Lys	Val	Glu	Ser 80
Asp	Thr	Val	Leu	Pro 85	Ser	Cys	Asn	Gly	Ile	Gln	Thr	Thr	Glu	Asn	Ser 95
Ser	Thr	Asp	Pro 100	Tyr	Thr	Val	Leu	Ser	Lys	Leu	Ile	Lys	Lys	Ile	Asn
Asp	Ser	Ile 115	Ile	Arg	Pro	Met	Thr 120	Ser	Arg	Leu	Ile	Asn 125	Lys	Ser	Phe
Pro	Glu 130	Leu	Cys	Lys	Leu	Phe 135	Ile	Lys	Met	Pro	Asp 140	Val	Asp	Ser	Asn
Lys 145	Phe	Met	Ala	Leu	Asp 150	Val	Asp	Ile	Ser	Asn 155	Thr	Leu	Val	Asn	Arg 160
Arg	Val	Arg	Tyr	Ser 165	Asp	Gly	Arg	Phe	Thr 170	Ile	Val	Ser	Thr	Gly 175	Ser
Asn	Phe	Arg	Tyr 180	Thr	Leu	Ala	Pro	Thr 185	Ala	Ala	Gly	His	Asp 190	Leu	Ser
Leu	Phe	Ser 195	Gln	Leu	Pro	Ile	Ser 200	Met	Ile	Thr	Val	Thr 205	Ser	Pro	Gln
Glu 210	Gln	Ala	Leu	Thr	Ser	Cys 215	Val	Ser	His	Gly	Asn 220	Glu	Phe	Ser	Ile
Val 225	Ser	Thr	Ala	Gly 230	Lys	Thr	Thr	Tyr	Thr 235	Thr	Gln	Ser	Lys	Leu 240	Leu
Ser	Leu	Phe	Lys 245	Leu	Ser	Ala	Glu	Thr 250	Leu	Arg	Asp	Phe	Asn 255	Glu	Ala
Arg	Phe	Ala	Leu 260	Gly	Asn	Met	Thr	Asp 265	Ser	Ala	Asn	Lys	Ser 270	Lys	Ala
Leu	Glu	Val 275	Tyr	Lys	Ser	Thr	Leu 280	Thr	Thr	Met	Lys 285	Ser	Ile	Ser	Val
Glu 290	Leu	Glu	Lys	Ile	Phe	Gly 295	Ile	Leu	Lys	Ser 300	Thr	Pro	Asn	Ile	Thr
Phe 305	Glu	Ser	Val	Val 310	Ser	Lys	Tyr	Lys	Leu 315	Thr	Gly	Val	Asn	Thr 320	Val
Asp	Thr	Ala	Asn 325	Ala	Asp	Val	Ile	Asn 330	Glu	Thr	Met	Phe	Asp 335	Asp	Leu
Ser	Lys	Ala	Ile	Ser	Ser	Tyr	Leu	Tyr	Ser	Leu	Ile	Ser	Ile	Ile	Phe

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<210> 175
<211> 613
<212> PRT
<213> Babesia microti

<400> 175
Met Gln His His His His His His Leu Arg Val Lys Asp Ala Ser Ser
      5                      10                      15

Thr Glu Ala Thr Ile Arg Met Phe Leu Arg Phe Asn Ala Phe Ile Lys
      20                      25                      30

Phe Leu Asn Glu Glu Lys Ser Arg Gly Asp Lys Ser Ala Leu Asn Asp
      35                      40                      45

Glu Gly Leu Met Arg Phe Ile Ser Met Thr Ser Gly Phe Ile Asp Asp
      50                      55                      60

Leu Glu Leu Val Leu Asp Glu Leu Ser Lys His Ser Leu Leu Ile Asn
      65                      70                      75                      80

Asn Glu Gly Ala Lys Ser Met Leu Ser Ser Leu Ile Leu Ser Phe Arg
      85                      90                      95

Tyr Ile Asn His Ile Arg Asn Leu Ile Asn Gly Ile Tyr Leu Gly Leu
      100                     105                     110

Asn Asn Pro Ser Ser Ser Ile Gly Glu Thr Ala Gln Glu Thr Thr Glu
      115                     120                     125

Pro Ser Thr Pro Thr Pro Thr Pro Ser Thr Gln Thr Ile Leu Lys Pro
      130                     135                     140

Lys Gly Ser Glu Ile Arg Gly Tyr Ile Ile Lys Val Asp Gln Thr Ala
      145                     150                     155                     160

Asn Leu Ile Thr Phe Ile Asp Ala Leu Ile Lys Glu Leu Asn Val His
      165                     170                     175

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Asn Leu Ile Thr Phe Ile Asp Ala Leu Ile Lys Glu Leu Asn Val His
 , 165 170 175

Ile Lys Gln Thr Thr Thr Ser Ser Val Val Gly Thr Lys Glu Thr Asn
 180 185 190
 Gly Thr Thr Ser Gly Ser Pro Glu Ser Asn Pro Gly Ser Thr Asp Ser
 195 200 205
 Gly Ser Ile Gln Ala Glu Val Ala Glu Leu Leu Lys Lys Phe Ala Thr
 210 215 220
 Ile Ala Ser Phe Asp Glu Lys Phe Thr Asn Leu His Ile Asn Lys Pro
 225 230 235 240
 Phe Ala Asp Ala Leu Ile Lys Arg Leu Asn Glu Ile Lys Ala Glu Leu
 245 250 255
 Ser Ser Asn Ser Gly Thr Pro Pro Lys Leu Pro Asp Ile Ser Cys Leu
 260 265 270
 Arg Leu Ser Glu Ile Val Gln Lys Leu Asn Arg Leu Ile Lys Phe Asn
 275 280 285
 Thr Ser Arg Leu Ile Asn Lys Ser Phe Pro Glu Leu Cys Lys Leu Phe
 290 295 300
 Ile Lys Met Pro Asp Val Asp Ser Asn Lys Phe Met Ala Leu Asp Val
 305 310 315 320
 Asp Ile Ser Asn Thr Leu Val Asn Arg Arg Val Arg Tyr Ser Asp Gly
 325 330 335
 Arg Phe Thr Ile Val Ser Thr Gly Ser Asn Phe Arg Tyr Thr Leu Ala
 340 345 350
 Pro Thr Ala Ala Gly His Asp Leu Ser Leu Phe Ser Gln Leu Pro Ile
 355 360 365
 Ser Met Ile Thr Val Thr Ser Pro Gln Glu Gln Ala Leu Thr Ser Cys
 370 375 380
 Val Ser His Gly Asn Glu Phe Ser Ile Val Ser Thr Ala Gly Lys Thr
 385 390 395 400
 Thr Tyr Thr Thr Gln Ser Lys Leu Leu Ser Leu Phe Lys Leu Ser Ala
 405 410 415
 Glu Thr Leu Arg Asp Phe Asn Glu Ala Arg Phe Ala Leu Gly Asn Met
 420 425 430
 Thr Asp Ser Ala Asn Lys Ser Lys Ala Leu Glu Val Tyr Lys Ser Thr
 435 440 445
 Leu Thr Thr Met Lys Ser Ile Ser Val Glu Leu Glu Lys Ile Phe Gly
 450 455 460

180 185 190 195 200 205 210 215 220 225 230 235 240 245 250 255 260 265 270 275 280 285 290 295 300 305 310 315 320 325 330 335 340 345 350 355 360 365 370 375 380 385 390 395 400 405 410 415 420 425 430 435 440 445 450 455 460

Ile Leu Lys Ser Thr Pro Asn Ile Thr Phe Glu Ser Val Val Ser Lys
465 470 475 480

Tyr Lys Leu Thr Gly Val Asn Thr Val Asp Thr Ala Asn Ala Asp Val
485 490 495

Ile Asn Glu Thr Met Phe Asp Asp Leu Ser Lys Ala Ile Ser Ser Tyr
500 505 510

Leu Tyr Ser Leu Ile Ser Ile Ile Phe Pro Glu Asp Ile Lys Gly Gln
515 520 525

Gly Thr Ser Glu Gly Gln Gln Thr Ser Glu Gly Gln Gln Thr Ser Glu
530 535 540

Gly Gln Gln Thr Ser Gly Asp Gln Asp Thr Ser Gly Gly Gln Asp Thr
545 550 555 560

Asn Glu Thr Ile Phe Ser Tyr Leu Tyr Ser Leu Ile Ser Ile Ile Phe
565 570 575

Pro Glu Asp Ile Lys Gly Gln Gly Thr Ser Ala Gln Leu Leu Glu Tyr
580 585 590

Arg Thr Gln Leu Ala Ser Leu Ser Lys Ile Lys Ser Leu Arg Lys Lys
595 600 605

Ile Lys Arg Arg Leu
610

<210> 176

<211> 303

<212> PRT

<213> Babesia microti

<400> 176

Met Gln His His His His His His His Phe Ile Thr Phe Phe Leu Thr
5 10 15

Ser Gly Asn Val Phe Ala Gly Asn Gly Asp Val Asn Gln Tyr Ser Ser
20 25 30

Asp Phe Gly Arg Ala Leu Asn Asp Leu Met Ile Ala Phe Asn Glu Ala
35 40 45

Lys Lys Met Tyr Ala Lys Phe Ser Glu Gln Ile Thr Asp Thr Met Ile
50 55 60

His Thr Cys Lys Asn Ser Ile Asp Ile Leu Glu Ala Asp Glu Lys Asn
65 70 75 80

Gly Gly His Lys Asn Tyr Leu Glu Lys Lys Glu Ile Glu Leu Lys Ser
85 90 95

Lys Ile Val Glu Phe Asn Ala Ile Phe Ser Asn Ile Asp Leu Asn Asn
 100 105 110

Ser Thr Val Lys Asn Glu Ile Ile Lys Leu Leu Asn Asp Ile Ser Thr
 115 120 125

Ile Ser Thr Asp Ile Lys Ser Ile Val Asp Glu Ile Tyr Tyr Lys Ala
 130 135 140

Leu Gly Thr Ile Glu Gly Glu Asn Ala Glu Asn Phe Glu Tyr Glu Ile
 145 150 155 160

Lys Lys Lys Lys Ala Glu Leu Leu Arg Asn Leu Leu Asn Asp Asn Ile
 165 170 175

Lys Pro Ile Met Gly Tyr Leu Thr Glu Ile Tyr Asn Met His Ile Pro
 180 185 190

Ile Ile Ser Asn Lys Ser Glu Phe Asn Asp Ile Lys Lys Ala Phe Glu
 195 200 205

Lys His Glu Leu Glu Ala Asn Val Leu Ile Ser Lys Ile Leu Glu Asn
 210 215 220

Asn Gln Asn Phe Gly Thr Asn Phe Asn Asp Ile Leu Asn Glu Val Asn
 225 230 235 240

Gly Ala Ile Glu Glu Phe Asn Lys Thr Ile Asp Val Met Asn Asn Thr
 245 250 255

Ile Gly Asp Leu Gly Ile Val Ile Asp Ser Gly Ile Ile Ser Ser Ile
 260 265 270

Lys Ser Tyr Ile Ser Thr Ile Ala Lys Ile Ser Asn Ser Ile Ile Pro
 275 280 285

Gly Gln Met Ala Leu Val Phe Thr Ala Leu Ile Leu Ile Leu Asn
 290 295 300

<210> 177

<211> 230

<212> PRT

<213> Babesia microti

<400> 177

Met Gln His His His His His Arg Leu Thr Leu Thr Leu Ala Thr
 5 10 15

Asn Thr Arg Gly Gly Ala Gly Thr Asp Ala Thr Ser Val Ser Ile Ala
 20 25 30

Thr Asn Thr Val Lys Ser Ala Ser Val His Pro Pro Gln Leu Lys Val
35 40 45

Leu Ala Leu Lys Phe Gly Asn Lys Ile Val Asp Val Glu Glu Thr Gly
 50 55 60
 Arg Thr Phe Val Thr Phe Asp Glu Lys Leu Asn Ser Ile Glu Ile Ile
 65 70 75 80
 Thr Phe Glu Asn Asp Gly Thr Met Thr Ser Lys Phe Tyr Ser Arg Glu
 85 90 95
 Ser Leu Asp Ser Thr Thr Tyr Ile Gly His Ala Ser Thr Tyr Thr Leu
 100 105 110
 Pro Glu Val Leu Thr Arg Ser Leu Cys Gly Lys Glu Asp Leu Cys Thr
 115 120 125
 Leu Asp Ile Thr Asp Leu Leu Lys Glu Ile Ser Ala Lys Lys Leu
 130 135 140
 Glu Glu Cys Arg Lys Lys Asn Ala Ser Ser Gly Thr Pro Ser Gly Gly
 145 150 155 160
 Thr Pro Ser Asn Val Pro Glu Glu Cys Val Ile Arg Thr Asn Leu Gln
 165 170 175
 Met Val Met Lys Lys Asn Ala Arg Ala
 180 185
 <210> 179
 <211> 260
 <212> PRT
 <213> Babesia microti
 <400> 179
 Met Gln His His His His His His Gly Ser Arg Phe Ser Glu Met Gly
 5 10 15
 Ser Arg Phe Ser Val Ser Pro Trp Ala Trp Leu Glu Cys Pro Ser Cys
 20 25 30
 Leu Pro Ser Pro Leu Phe Gln Val Thr Met Ser Pro Ser Gln Ser Pro
 35 40 45
 Arg Trp Ser Ser Cys Pro Pro Leu Ser Ser Trp Leu Leu Pro His Pro
 50 55 60
 Arg His Ile Pro Ile Lys Asp Cys Arg Leu Ser Tyr Cys Tyr Pro Cys
 65 70 75 80
 Arg Val Leu Met Pro Leu Arg Pro Gly Thr Ser Ser Ala Ser Val Pro
 85 90 95
 Ser Arg Pro His Ser Ala Pro Pro His Val Ala Gly Pro Pro Ser Ala

100	105	110
Pro Arg Asp Leu Gln Tyr Ser	Leu Ser Arg Ser Pro	Leu Ala Leu Arg
115	120	125
Leu Arg Trp Leu Pro Pro Ala Asp Ser Gly Gly Arg Ser Asp Val Thr		
130	135	140
Tyr Ser Leu Leu Cys Leu Leu Cys Gly Arg Asp Gly Pro Ala Gly Ala		
145	150	155
Cys Gln Pro Cys Gly Pro Arg Val Ala Phe Val Pro Arg Gln Ala Gly		
165	170	175
Leu Arg Glu Arg Ala Ala Thr Leu Leu His Leu Arg Pro Gly Ala Arg		
180	185	190
Tyr Thr Val Arg Val Ala Ala Leu Asn Gly Val Ser Gly Pro Ala Ala		
195	200	205
Ala Ala Glu Ala Thr Tyr Ala Gln Val Thr Val Ser Thr Gly Pro Gly		
210	215	220
Gly Glu Ala Thr Arg Pro Ser Gly Val Arg Pro Pro Pro Gln Pro Gln		
225	230	235
Phe Pro Leu Cys Ile Pro Ser His Ser Gly Thr His Val Thr Thr Pro		
245	250	255
His Ala Pro Gly		
260		
<210> 180		
<211> 297		
<212> PRT		
<213> Babesia microti		
<400> 180		
Met Gln His His His His His His Glu Ala Asn Ile Arg Thr Asn Gln		
5	10	15
Thr Val Arg Ile Tyr Leu Ala Leu Gln Glu Ser Tyr Leu His Thr His		
20	25	30
Ala His Val Leu Ser Val Cys Thr Ala Thr Ser Thr Thr Ser Ala Thr		
35	40	45
Ser Thr Thr Ala Thr Thr Ser Thr Thr Thr Ala Thr Ser Thr Thr Thr		
50	55	60
Ala Thr Ser Thr Thr Ala Thr Thr Ser Thr Thr Ala Ala Thr Ser Thr		
65	70	75
		80

Ile Ser Pro Ser Leu Glu Thr Thr Gln Asp Val Ala Val Thr Asn Ile
85 90 95

Val Asn Leu Asn Ile Asn Glu Ile Gly Phe Val Asp Gln Val Pro Glu
100 105 110

Gly Leu Ser Ser Ser Tyr Val Phe Ser Thr Asp Gly Ile Phe Thr Lys
115 120 125

Val Thr Pro Ala Thr Gly Phe Ser Ile Gly Cys Val Ile Phe Gly Asn
130 135 140

Gln Leu Ile Pro Gln Ser Met Asp Val Ile Thr Arg Thr Val Ser Tyr
145 150 155 160

Thr Thr Lys Tyr Pro Leu Ile Val Val Arg Ile Gln Asp Lys Thr Ser
165 170 175

Ser Ser Thr Ser Thr Val Tyr Tyr Glu Gln Ser Gly Leu Gln Ser Ser
180 185 190

Lys Phe Val Leu Arg Asp Asp Pro Glu Phe Ile Ile Pro Gln Asn Arg
195 200 205

Ser Ser Thr Tyr Thr Val Asn Asp Ile Thr Tyr Lys Ser Phe Asp Ile
210 215 220

Ser Ser Ala Asp Asp Asn Glu Phe Leu Lys Ile Ser Leu Ser Asp Gly
225 230 235 240

Ser Met Leu Tyr Thr Asn Asn Pro Asp Ser Lys Ile Tyr Ile Ser Glu
245 250 255

Val Lys Val Gly Glu Ile Thr Ile Pro Ile Asn Ile Thr Ser Gln Tyr
260 265 270

Thr Leu Ile Lys Leu Ser Phe Asn Gly Glu Leu Val Glu Leu Tyr Thr
275 280 285

Thr Gly Cys Phe Gly Glu His Asn Ile
290 295

<210> 181

<211> 25

<212> PRT

<213> B. microti

<400> 181

Thr Gly Thr Ala Gly Thr Thr Thr Ser Ser Glu Gly Ala Gly Ser Asp
5 10 15

Lys Ala Gly Thr Gly Thr Ser Gly Thr
20 25

<210> 182
 <211> 25
 <212> PRT
 <213> B. microti

<400> 182
 Glu Ala Gly Gly Thr Ser Gly Thr Thr Thr Ser Ser Gly Ala Ala Ser
 5 10 15

Gly Lys Ala Gly Thr Gly Thr Ala Gly
 20 25

<210> 183
 <211> 25
 <212> PRT
 <213> B. microti

<400> 183
 Thr Gly Asn Gly Gly Thr Glu Ser Gly Gly Thr Ala Gly Thr Thr Thr
 5 10 15

Ser Ser Gly Thr Glu Ala Gly Gly Thr
 20 25

<210> 184
 <211> 25
 <212> PRT
 <213> B. microti

<400> 184
 Thr Glu Ser Gly Gly Ala Gly Ser Gly Thr Gly Thr Ser Val Ser Ala
 5 10 15

Thr Ser Thr Leu Thr Gly Asn Gly Gly
 20 25

<210> 185
 <211> 25
 <212> PRT
 <213> B. microti

<400> 185
 Tyr Ile Val Gly Ala Gly Val Glu Ala Val Thr Val Ser Val Ser Ala
 5 10 15

Thr Ser Asn Gly Thr Glu Ser Gly Gly
 20 25

<210> 186

<211> 25
 <212> PRT
 <213> B. microti

<400> 186
 Gly Ile Lys Ile Asn Arg Asp Val Ile Ser Ser Tyr Lys Leu Leu Leu
 5 10 15
 Ser Thr Ile Thr Tyr Ile Val Gly Ala
 20 25

<210> 187
 <211> 26
 <212> PRT
 <213> B. microti

<400> 187
 Thr Cys Ala Asn Thr Lys Phe Glu Ala Leu Asn Asp Leu Ile Ile Ser
 5 10 15
 Asp Cys Glu Lys Lys Gly Ile Lys Ile Asn
 20 25

<210> 188
 <211> 25
 <212> PRT
 <213> B. microti

<400> 188
 Ile Leu Asp Asn Asp Glu Asp Tyr Lys Ile Asn Phe Arg Glu Met Val
 5 10 15
 Asn Glu Val Thr Cys Ala Asn Thr Lys
 20 25

<210> 189
 <211> 27
 <212> PRT
 <213> B. microti

<400> 189
 Pro Ser Gly His Ala Ser Asn Ala Lys Ile Pro Gly Ile Met Thr Leu
 5 10 15
 Thr Leu Phe Ala Leu Leu Thr Phe Ile Val Asn
 20 25

<210> 190
 <211> 25
 <212> PRT

<213> B. microti

$\langle 400 \rangle$ 190

Gly Thr Ser Gly Thr Thr Thr Ser Ser Gly Thr Gly Ala Gly Gly Ala
5 10 15

Gly Ser Gly Gly Pro Ser Gly His Ala
20 25

<210> 191

<211> 25

<212> PRT

<213> B. microti

<400> 191

Asp Asp Ile Lys Lys Ala Phe Asp Glu Cys Lys Ser Asn Ala Ile Ile
5 10 15

Leu Lys Lys Lys Ile Leu Asp Asn Asp
20 25

<210> 192

<211> 25

<212> PRT

<213> B. microti

<400> 192

Gly Asn Ala Gly Ile Lys Ser Tyr Asp Thr Gln Thr Thr Gln Glu Ile
5 10 15

Cys Glu Glu Cys Glu Glu Gly His Asp
20 25

<210> 193

<211> 25

<212> PRT

<213> B. microti

<400> 193

Thr Gln Glu Ile Cys Glu Glu Cys Glu Glu Gly His Asp Lys Ile Asn
5 10 15

Lys Asn Lys Ser Gly Asn Ala Gly Ile
20 25

<210> 194

<211> 50

<212> PRT

<213> B. microti

<400> 194

Gly Lys Pro Asn Thr Asn Lys Ser Glu Lys Ala Glu Arg Lys Ser His
 5 10 15

Asp Thr Gln Thr Thr Gln Glu Ile Cys Glu Glu Gly Gly Thr Ser Gly
 20 25 30

Thr Thr Thr Ser Ser Gly Ala Ala Ser Gly Lys Ala Gly Thr Gly Thr
 35 40 45

Ala Gly
 50

<210> 195

<211> 26

<212> PRT

<213> B. microti

<400> 195

Gly Lys Pro Asn Thr Asn Lys Ser Glu Lys Ala Glu Arg Lys Ser His
 5 10 15

Asp Thr Gln Thr Thr Gln Glu Ile Cys Glu
 20 25

<210> 196

<211> 25

<212> PRT

<213> B. microti

<400> 196

Leu Asp Asn Leu Leu Arg Leu Thr Ala Gln Glu Ile Tyr Glu Glu Arg
 5 10 15

Lys Glu Gly His Gly Lys Pro Asn Thr
 20 25

<210> 197

<211> 25

<212> PRT

<213> B. microti

<400> 197

Ser Glu Lys Thr Glu Arg Lys Ser His Asp Thr Gln Thr Pro Gln Glu
 5 10 15

Ile Tyr Glu Glu Leu Asp Asn Leu Leu
 20 25

<210> 198

<211> 25
 <212> PRT
 <213> B. microti

<400> 198
 Ile Lys Ser Tyr Asp Thr Gln Thr Pro Gln Glu Thr Ser Asp Ala His
 5 10 15
 Glu Glu Glu His Gly Asn Leu Asn Lys
 20 25

<210> 199
 <211> 26
 <212> PRT
 <213> B. microti

<400> 199
 Ile Cys Glu Glu Cys Glu Glu Gly His Asp Lys Ile Asn Lys Asn Lys
 5 10 15
 Ser Gly Asn Ala Gly Ile Lys Ser Tyr Asp
 20 25

<210> 200
 <211> 25
 <212> PRT
 <213> B. microti

<400> 200
 Thr Ala Gln Glu Thr Ser Asp Asp His Glu Glu Gly Asn Gly Lys Leu
 5 10 15
 Asn Thr Asn Lys Ser Glu Lys Thr Glu
 20 25

<210> 201
 <211> 25
 <212> PRT
 <213> B. microti

<400> 201
 Thr Asn Lys Ser Glu Lys Ala Glu Arg Lys Ser His Asp Thr Gln Thr
 5 10 15
 Thr Gln Glu Ile Cys Glu Glu Cys Glu
 20 25

<210> 202
 <211> 25
 <212> PRT

<213> B. microti

<400> 202

Glu Glu Gly His Asp Lys Ile Asn Lys Asn Lys Ser Gly Asn Ala Gly
5 10 15

Ile Lys Ser Tyr Asp Thr Gln Thr Pro
20 25

<210> 203

<211> 25

<212> PRT

<213> B. microti

<400> 203

Asp Thr Gln Thr Pro Gln Glu Thr Ser Asp Ala His Glu Glu Gly His
5 10 15

Asp Lys Ile Asn Thr Asn Lys Ser Glu
20 25

<210> 204

<211> 1359

<212> DNA

<213> Babesia microti

<400> 204

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aatatgaata	tgagcataca	gaattagcaa	aagagcattg	caagaaagaa	aaatgtgtaa	180
atgtggataa	cattgaggat	aataatttga	aaatatatgc	gaaacagttt	aaatctgtag	240
ttactactcc	agctgatgta	gcgggtgtgt	cagatggatt	ttttatacgt	ggccaaaatc	300
ttggtgctgt	gggcagtgtg	aatgaacaac	ctaatactgt	tggtatgagt	ttagaacaat	360
tcatacaagaa	cgagctttat	tcttttagta	atgaaattta	tcatacaata	tctagtcaaa	420
tcagtaattc	tttcttaata	atgatgtctg	atgcaattgt	taaacatgat	aactatattt	480
taaaaaaaga	aggtgaaggc	tgtgaacaaa	tctacaatta	tgaggaattt	atagaaaagt	540
tgaggggtgc	tagaagttag	gggaataata	tgtttcagga	agctctgata	aggttttaga	600
atgctagtag	tgaagaaatg	gttaatgctg	caagttatct	atccgccgcc	cttttcagat	660
ataaggaatt	tgatgatgaa	ttattcaaaa	aggccaacga	taatttttga	cgcgatgatg	720
gatatgattt	tgattatata	aatacaaaga	aagagttagt	tatacttgcc	agtgtgttgg	780
atggttttga	tttaataatg	gaacgtttga	tcgaaaattt	cagtgatgtc	aataatacag	840
atgatattaa	gaaggcattt	gacgaatgca	aatctaattg	tatttatattg	aagaaaaaga	900
tacttgacaa	tgatgaagat	tataagatta	atttttaggga	aatggtgaat	gaagtaacat	960
gtgcaaacac	aaaatttgaa	gccctaaatg	atttgataat	ttccgactgt	gagaaaaaag	1020
gtattaagat	aaacagagat	gtgatttcaa	gctacaaatt	gcttctttcc	acaatcacct	1080
atattgttgg	agctggagtt	gaagctgtaa	ctgttagtgt	gtctgctaca	tctaattggaa	1140
ctggttggtg	tggagctgct	agtggaaactg	gaactagtgg	aactactacg	tctagtgaag	1200
gtgctggtag	tggtaaagct	ggaactggaa	ctagtggaac	tactacgtct	agtggaaactg	1260
gtgctggtag	agctggtagt	ggtggaccta	gtggacatgc	ttctaattgca	aaaattcctg	1320
gaataatgac	actaactcta	tttgcattat	taacattta			1359

<210> 205

<211> 25
 <212> DNA
 <213> Babesia microti

<400> 205
 aaatgttaat aatgcaaata gagtt 25

<210> 206
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 <212> DNA
 <213> Babesia microti

<400> 206
 caatgaataa tgatacaaat aaatgg 26

<210> 207
 <211> 54
 <212> PRT
 <213> Babesia microti

<400> 207
 Tyr Ile Val Gly Ala Gly Val Glu Ala Val Thr Val Ser Val Ser Ala
 5 10 15
 Thr Ser Asn Gly Thr Gly Gly Gly Gly Ala Ala Ser Gly Thr Gly Thr
 20 25 30
 Ser Gly Thr Thr Thr Ser Ser Glu Gly Ala Gly Ser Gly Lys Ala Gly
 35 40 45
 Thr Gly Thr Ser Gly Thr
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<210> 208
 <211> 45
 <212> PRT
 <213> Babesia microti

<400> 208
 Tyr Ile Val Gly Ala Gly Val Glu Ala Val Thr Val Ser Val Ser Ala
 5 10 15
 Thr Ser Asn Gly Thr Glu Ser Gly Gly Ala Gly Ser Gly Thr Gly Thr
 20 25 30
 Ser Val Ser Ala Thr Ser Thr Leu Thr Gly Asn Gly Gly
 35 40 45

<210> 209
 <211> 452
 <212> PRT
 <213> Babesia microti

Lys Tyr Asp Lys Arg Phe Asn Glu His Thr Asp Met Asn Gly Ile His
5 10 15

Tyr Tyr Tyr Ile Asp Gly Ser Leu Leu Ala Ser Gly Glu Val Thr Ser
20 25 30

Asn Phe Arg Tyr Ile Ser Lys Glu Tyr Glu Tyr Glu His Thr Glu Leu
35 40 45

Ala Lys Glu His Cys Lys Lys Glu Lys Cys Val Asn Val Asp Asn Ile
50 55 60

Glu Asp Asn Asn Leu Lys Ile Tyr Ala Lys Gln Phe Lys Ser Val Val
65 70 75 80

Thr Thr Pro Ala Asp Val Ala Gly Val Ser Asp Gly Phe Phe Ile Arg
85 95

Gly Gln Asn Leu Gly Ala Val Gly Ser Val Asn Glu Gln Pro Asn Thr
100 105 110

Val Gly Met Ser Leu Glu Gln Phe Ile Lys Asn Glu Leu Tyr Ser Phe
115 120 125

Ser Asn Glu Ile Tyr His Thr Ile Ser Ser Gln Ile Ser Asn Ser Phe
130 135 140

Leu Ile Met Met Ser Asp Ala Ile Val Lys His Asp Asn Tyr Ile Leu
145 150 155 160

Lys Lys Glu Gly Glu Gly Cys Glu Gln Ile Tyr Asn Tyr Glu Glu Phe
165 170 175

Ile Glu Lys Leu Arg Gly Ala Arg Ser Glu Gly Asn Asn Met Phe Gln
180 185 190

Glu Ala Leu Ile Arg Phe Arg Asn Ala Ser Ser Glu Glu Met Val Asn
195 200 205

Ala Ala Ser Tyr Leu Ser Ala Ala Leu Phe Arg Tyr Lys Glu Phe Asp
210 215 220

Asp Glu Leu Phe Lys Lys Ala Asn Asp Asn Phe Gly Arg Asp Asp Gly
225 230 235 240

Tyr Asp Phe Asp Tyr Ile Asn Thr Lys Lys Glu Leu Val Ile Leu Ala
245 250 255

Ser Val Leu Asp Gly Leu Asp Leu Ile Met Glu Arg Leu Ile Glu Asn
260 265 270

Phe Ser Asp Val Asn Asn Thr Asp Asp Ile Lys Lys Ala Phe Asp Glu

275 280 285
 Cys Lys Ser Asn Ala Ile Ile Leu Lys Lys Lys Ile Leu Asp Asn Asp
 290 295 300
 Glu Asp Tyr Lys Ile Asn Phe Arg Glu Met Val Asn Glu Val Thr Cys
 305 310 315 320
 Ala Asn Thr Lys Phe Glu Ala Leu Asn Asp Leu Ile Ile Ser Asp Cys
 325 330 335
 Glu Lys Lys Gly Ile Lys Ile Asn Arg Asp Val Ile Ser Ser Tyr Lys
 340 345 350
 Leu Leu Leu Ser Thr Ile Thr Tyr Ile Val Gly Ala Gly Val Glu Ala
 355 360 365
 Val Thr Val Ser Val Ser Ala Thr Ser Asn Gly Thr Gly Gly Gly Gly
 370 375 380
 Ala Ala Ser Gly Thr Gly Thr Ser Gly Thr Thr Thr Ser Ser Glu Gly
 385 390 395 400
 Ala Gly Ser Gly Lys Ala Gly Thr Gly Thr Ser Gly Thr Thr Thr Ser
 405 410 415
 Ser Gly Thr Gly Ala Gly Gly Ala Gly Ser Gly Gly Pro Ser Gly His
 420 425 430
 Ala Ser Asn Ala Lys Ile Pro Gly Ile Met Thr Leu Thr Leu Phe Ala
 435 440 445
 Leu Leu Thr Phe
 450

<210> 210

<211> 2079

<212> DNA

<213> Babesia microti

<400> 210

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 taccggtgat tctgaggacc tactttaaag agaataatta acatatctac cagaatcagt 180
 tccaatttat gtatttttaa gctaactact actcgaaaac tacggtgaaa atggaaaaac 240
 aagtggaagc tgtatgtcgt ggaaagtcac tacattttat gtgggcaaat ttaataattc 300
 taaatactat gtttttgatg ttaaaaagcg aaaaacacac tttaatgcac attttaacat 360
 catctgtata atatatatat cagcgttgaa atcatatggc aaaggtaata aagcgttaca 420
 ttttgagoga ataaaggcac atatgcaaac gtatgaagcc ttgtatattt gtggaattat 480
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 tattatatgc atgcacataa ttaatcacia actctcatat catggggcgg tttcgcccat 600
 cataaacatt actgtaggca ctctggtaga ttagcatggg gaatctctcg atacctgggc 660
 tactgttgct ttccgcatat tccttaaatt ctgcaagtgc ggggatgta tatgagatat 720

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cttctggttaa tccacccgac atagagccaa catctacttc tctagaaaca aatgtagtta 780
ccaactatat tccagaaccc aatgcggatt cagaatctgt acatgttgaa atccaggaac 840
atgataacat caatccacaa gacgcttgcg atagtgaacc gctcgaacaa atggattctg 900
ataccagggt gttgcccgaag agtttgatg aggggggtacc acaccaattc tctagattag 960
ggcaccactc agacatggca tctgatataa atgatgaaga accatcattt aaaatcggcg 1020
agaatgacat aattcaacca ccctgggaag atacagctcc ataccattca atagatgatg 1080
aagagcttga caacttaatg agactaacgg cgcaagaaac aagtgaacgat catgaagaag 1140
ggaatggcaa actcaatacg aataaaaagt agaagactga aagaaaatcg catgatactc 1200
agacaccgca agaaatatat gaagagcttg acaacttact gagactaacg gcacaagaaa 1260
tatatgaaga gcgtaaagaa gggcatggca aacccaatac gaataaaaagt gagaaggctg 1320
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atgacaaaat caataagaat aaaagtggaa atgctggaat aaaatcgtat gatactcaga 1440
caacgcaaga aatatgtgaa gagtgtgaag aagggcgatg caaaatcaat aagaataaaa 1500
gtggaaatgc tggataaaaa tctgtatgata ctacagacacc gcaggaaaca agtgacgctc 1560
atgaagaagg gcatgacaaa atcaatacga ataaaagtga gaaggctgaa agaaaatcgc 1620
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caagtgaacg tcataataact cagacaccgc tgaaaaaaaaa agacttttgt aaagaagggt 1800
gaataaaaat gcataataact cccgaggata atgaaagaga cccgtcgtcg cctgatgatg 1860
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atggtggctg cgaatgcggc gaaacatcca ctctattatta cattgccatg gctgcaattt 2040
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<210> 211

<211> 481

<212> PRT

<213> Babesia microti

<400> 211

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Met Val Asn Leu Ser Ile Pro Gly Leu Leu Leu Leu Ser Ala Tyr Ser
          5                      10                      15

```

```

Leu Asn Ser Ala Ser Ala Gly Asp Val Tyr Glu Ile Ser Ser Gly Asn
          20                      25                      30

```

```

Pro Pro Asp Ile Glu Pro Thr Ser Thr Ser Leu Glu Thr Asn Val Val
          35                      40                      45

```

```

Thr Asn Tyr Ile Pro Glu Pro Asn Ala Asp Ser Glu Ser Val His Val
          50                      55                      60

```

```

Glu Ile Gln Glu His Asp Asn Ile Asn Pro Gln Asp Ala Cys Asp Ser
          65                      70                      75                      80

```

```

Glu Pro Leu Glu Gln Met Asp Ser Asp Thr Arg Val Leu Pro Glu Ser
          85                      90                      95

```

```

Leu Asp Glu Gly Val Pro His Gln Phe Ser Arg Leu Gly His His Ser
          100                     105                     110

```

```

Asp Met Ala Ser Asp Ile Asn Asp Glu Glu Pro Ser Phe Lys Ile Gly
          115                     120                     125

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Glu Asn Asp Ile Ile Gln Pro Pro Trp Glu Asp Thr Ala Pro Tyr His
 130 135 140
 Ser Ile Asp Asp Glu Glu Leu Asp Asn Leu Met Arg Leu Thr Ala Gln
 145 150 155 160
 Glu Thr Ser Asp Asp His Glu Glu Gly Asn Gly Lys Leu Asn Thr Asn
 165 170 175
 Lys Ser Glu Lys Thr Glu Arg Lys Ser His Asp Thr Gln Thr Pro Gln
 180 185 190
 Glu Ile Tyr Glu Glu Leu Asp Asn Leu Leu Arg Leu Thr Ala Gln Glu
 195 200 205
 Ile Tyr Glu Glu Arg Lys Glu Gly His Gly Lys Pro Asn Thr Asn Lys
 210 215 220
 Ser Glu Lys Ala Glu Arg Lys Ser His Asp Thr Gln Thr Thr Gln Glu
 225 230 235 240
 Ile Cys Glu Glu Cys Glu Glu Gly His Asp Lys Ile Asn Lys Asn Lys
 245 250 255
 Ser Gly Asn Ala Gly Ile Lys Ser Tyr Asp Thr Gln Thr Thr Gln Glu
 260 265 270
 Ile Cys Glu Glu Cys Glu Glu Gly His Asp Lys Ile Asn Lys Asn Lys
 275 280 285
 Ser Gly Asn Ala Gly Ile Lys Ser Tyr Asp Thr Gln Thr Pro Gln Glu
 290 295 300
 Thr Ser Asp Ala His Glu Glu Gly His Asp Lys Ile Asn Thr Asn Lys
 305 310 315 320
 Ser Glu Lys Ala Glu Arg Lys Ser His Asp Thr Gln Thr Thr Gln Glu
 325 330 335
 Ile Cys Glu Glu Cys Glu Glu Gly His Asp Lys Ile Asn Lys Asn Lys
 340 345 350
 Ser Gly Asn Ala Gly Ile Lys Ser Tyr Asp Thr Gln Thr Pro Gln Glu
 355 360 365
 Thr Ser Asp Ala His Glu Glu Glu His Gly Asn Leu Asn Lys Asn Lys
 370 375 380
 Ser Gly Lys Ala Gly Ile Lys Ser His Asn Thr Gln Thr Pro Leu Lys
 385 390 395 400
 Lys Lys Asp Phe Cys Lys Glu Gly Cys His Gly Cys Asn Asn Lys Pro
 405 410 415

Glu Asp Asn Glu Arg Asp Pro Ser Ser Pro Asp Asp Asp Gly Gly Cys
 420 425 430

Glu Cys Gly Met Thr Asn His Phe Val Phe Asp Tyr Lys Thr Thr Leu
 435 440 445

Leu Leu Lys Ser Leu Lys Thr Glu Thr Ser Thr His Tyr Tyr Ile Ala
 450 455 460

Met Ala Ala Ile Phe Thr Ile Ser Leu Phe Pro Cys Met Phe Lys Ala
 465 470 475 480

Phe

<210> 212

<211> 20

<212> PRT

<213> Babesia microti

<400> 212

Asn Ser Ala Ser Ala Gly Asp Val Tyr Glu Ile Ser Ser Gly Asn Pro
 5 10 15

Pro Asp Ile Glu
 20

<210> 213

<211> 20

<212> PRT

<213> Babesia microti

<400> 213

Pro Pro Asp Ile Glu Pro Thr Ser Thr Ser Leu Glu Thr Asn Val Val
 5 10 15

Thr Asn Tyr Ile
 20

<210> 214

<211> 20

<212> PRT

<213> Babesia microti

<400> 214

Val Thr Asn Tyr Ile Pro Glu Pro Asn Ala Asp Ser Glu Ser Val His
 5 10 15

Val Glu Ile Gln
 20

<210> 215
 <211> 20
 <212> PRT
 <213> Babesia microti

<400> 215
 His Val Glu Ile Gln Glu His Asp Asn Ile Asn Pro Gln Asp Ala Cys
 5 10 15

Asp Ser Glu Pro
 20

<210> 216
 <211> 21
 <212> PRT
 <213> Babesia microti

<400> 216
 Ala Cys Asp Ser Glu Pro Leu Glu Gln Met Asp Ser Asp Thr Arg Val
 5 10 15

Leu Pro Glu Ser Leu
 20

<210> 217
 <211> 20
 <212> PRT
 <213> Babesia microti

<400> 217
 Leu Pro Glu Ser Leu Asp Glu Gly Val Pro His Gln Phe Ser Arg Leu
 5 10 15

Gly His His Ser
 20

<210> 218
 <211> 20
 <212> PRT
 <213> Babesia microti

<400> 218
 Leu Gly His His Ser Asp Met Ala Ser Asp Ile Asn Asp Glu Glu Pro
 5 10 15

Ser Phe Lys Ile
 20

<210> 219

<211> 20
 <212> PRT
 <213> Babesia microti

<400> 219
 Pro Ser Phe Lys Ile Gly Glu Asn Asp Ile Ile Gln Pro Pro Trp Glu
 5 10 15
 Asp Thr Ala Pro
 20

<210> 220
 <211> 20
 <212> PRT
 <213> Babesia microti

<400> 220
 Glu Asp Thr Ala Pro Tyr His Ser Ile Asp Asp Glu Glu Leu Asp Asn
 5 10 15
 Leu Met Arg Leu
 20

<210> 221
 <211> 20
 <212> PRT
 <213> Babesia microti

<400> 221
 His Ser Ile Asp Asp Glu Glu Leu Asp Asn Leu Met Arg Leu Thr Ala
 5 10 15
 Gln Glu Thr Ser
 20

<210> 222
 <211> 20
 <212> PRT
 <213> Babesia microti

<400> 222
 Thr Thr Leu Leu Leu Lys Ser Leu Lys Thr Glu Thr Ser Thr His Tyr
 5 10 15
 Tyr Ile Ala Met
 20

<210> 223
 <211> 21
 <212> PRT

<400> 223

Leu Leu Lys Ser Leu
20

<211> 20

<212> PRT

<213> Babesia microti

<400> 224

Cys Gly Met Thr
20